Vol. 1

Birds of California

Species Accounts
1930 - 1936
A - B

E. L. Sumner, Jr.

Accipiter cooperii

8/20/30. Jamul Ranch, San Diego Co., Calif. One bird (♀?) seen flying across canyon near cement works.

9/10/31 Alpine Creek (Ralph) Ranch, San Mateo Co., Calif. On road down hill to boat house by lake, in thick bushes there. A ♀ flushed from the trees as I went through, and instantly disappeared among the thick trees.

9/21/31 Alp. Cr. R. See under Lophortyx for this date for alarm of quail caused by this hawk.

Mr Leglan says that one of these hawks took a young chicken right before their eyes, from out of the chicken yard yesterday. Says this is the first one they have lost this way so far.

9/28/31 Alp. Cr. R. One seen this A.M. circling about 100-200 ft up in mountains of chicken pens and deer paddock. Mr L. says two or three days ago they lost a second chicken.

10/1/31 A.C.R. at chicken house. Heard a commotion among the chickens, and one cheeping as though hard

present, also a lot of flapping and flying about on the part of the pigeons that spend their time on the chicken-house roof. On peering through the trees I made out the (same?) hawk dashing here and there in the chicken yard apparently following the dodging of the chicken that was chasing. The chicken disappeared into the chicken-house via the run-way about the time I got a good look and the hawk hit with a thump on the wire fence, flew to the top of the chicken house a moment later, and then catching sight of me 150 ft. away, as I made slight movements trying to peer through the thick foliage, flew off instantly and disappeared. A minute or two later as I stood still trying to make out where he had gone, out of the corner of my eye I caught sight of him flying rapidly toward a tree by the bungalow 125 yds away. He lit in a tall oak and then, as I approached, flew to another, denser, tree near by. Immediately upon his arrival in this other tree there was a chorus of gnat-gnats

Accipiter cooperii

from a flock of quail which was hiding low in the thick and smoothly brush at the base of the tree — I never did see them. As I continued to approach the hawk darted out of the tree, upon the far side, and away, almost before I could get a glimpse of him, and I lost him. An hour or so later I saw what I took to be the same one circling high, over head, soaring and flapping, along the chicken yard, presently he slanted down towards Los Liagues Canyon, and disappeared over the brush, where I lost him for good — (or rather she, I suspect)

They certainly are elusive birds. See note under Aphelocoma regarding failure of these birds to give warning signals in the presence of the hawk.

Time was about 9 A.M.

10/ 9/17/31 Mrs. McLellan tells me that they killed one of these birds which had got into the ~~chicken~~ pigeon house 9/13/31 and got lost so that it was unable to get out. All the pigeons were over in the other end of the house, frightened. The hawk did not have a pigeon at the

time it was discovered.

(spring) 10/9/17/31 I saw one of these just for a moment, as it darted swiftly across a clearing and through a clump of trees, where it disappeared out of sight. I noted that unlike most hawks when it entered the clump of trees instead of easing to clear them, approaching through the tops where they were thinnest it dived downwards, and slipped through where they were much denser — like a cover-loving bird.

10/24/31 It has rained for 2 days (see weather records) and no hawks have been seen, or degradations noted.

10/31/31 Alp. Gr. R. One seen — just for an instant, as usual, in same general vicinity. I suspect that it (or they) hang around this section on account of the pigeons, chickens, and quail.

11/1/31 Same place. Saw a bird of this species suddenly dive out of a tree top, make an abrupt right hand turn, as though after a bird, and disappear behind the tree all in the wink of an eye. I had my gun right by

my side but it might as well have been home, the family gave me so little opportunity to use it.
About 5 minutes later I saw it (or another) soaring over the deer paddock, and lost it again. Then a moment later a very large ♀ (perhaps it was the same one) alighted in a tall oak over by the swimming-pool. I shot at it over there, but each time while I was yet out of range, it would shift its position. At last it settled in among some trees, nearly out of sight, and I was able to get within very long and uncertain range but upon my raising the barrel rose, flew along the hillside high above the orchard and disappeared among the oaks above the Crank house. I never dreamed they were such devils to get a shot at. (Incidentally remember the two sparrow-hawks I sitting out on fence posts, that McLellan took to be of this species, and would have shot if he had had his guncase with him.)

Accipiter cooperii

At no time did I hear any of the jays, which are always abundant ~~there~~ about, give ~~an~~ warning cry when the hawk was about.

Dec 16, 1931 Alp. Cr. Ranch, by hen house. about 10 a.m. Heard a commotion (flapping) among the pigeons and saw the whole flock (about 15) wheel in a circle round and round over the chicken house and yards. As I watched a cooper hawk darted from somewhere behind the house and lit on the roof, where it remained, watching the gyrations of the pigeons. Around and around they continued to fly, coming within about 20 ft of him at the nearest part of the circle, and he seemed to be watching them, for every now and then he would crane his neck and look his head, just like my young owls etc (see pages on general raptorial birds in process now). I dont know why the pigeons kept circling so low down (they didnt even clear the trees which surrounded the chicken yards) and so persistantly unless it was that they knew he couldnt catch them (but I'm not sure that he couldnt judging from 3 or 4 pigeon carcasses

which I have seen around there recently) and were just uneasy and alarmed enough that they couldn't alight but not so alarmed as to fly out away from the place. At any rate it is a fact that the hawk didn't go after them even when they passed by so near; perhaps he can catch them only when he takes them unawares. Was only about 80 ft away but was motionless and apparently escaped the hawk's notice. Presently he flew swiftly to a dense acacia tree at the edge of the yard and perched not in the top like other hawks, but right in the thickest part of the tree at the middle, so that I almost immediately lost sight of him. No wonder the hunters seldom get these hawks. What happened after this I don't know, except that I moved about that time, and did not see the hawk again.

Dec 17, 1931 Ag. C. R. Saw an A. cooperii in the usual place this noon. It was flying from one clump of trees to another and disappeared almost immediately, as usual. Neither on this occasion or the one preceding, or at any other time, have I heard any warning notes from jays.

Accipiter cooperii

Dec 12, 1931 Alpine Cr. Ranch, by chicken house.
While Bill Zenhone and I were tearing down a fence not over 80 feet from the chicken house (although partially screened from it by various intervening trees and vines), we heard the usual clap-clap of pigeon wings as the birds took off and the frightened cries of a few chickens as they scurried about inside the open yards. At the same time there was a flicker of grayish wings and there on the fence which separates two of the yards, was the cooper hawk. He stayed there for just an instant and then vanished into a nearby tree, nor did we get another glimpse of him although we got the shot gun ready. This bird (or others like him) seems to be by no means uniformly successful in his sallies into the chicken yard for, although there are remains of pigeons to the number of half a dozen or so lying about in the neighborhood, I have never seen him get one yet. As regards the

chickens which I have distinctly seen hunting for an ~~more than~~ one occasion, they are for the most part much too big for him, although several are young and would be small enough all right. As usual, no jays resounded their warnings.

Jan 3, 1932 Alg. Gr. P. Mrs. McLellan told me Buster had shot a cooper hawk which she (Mrs M.) had discovered inside the pigeon house. Like the other hawk, it had got lost inside and was unable to get out. Smithers (now Jan 5) I have seen no cooper hawks about the place although I have been searching for two days in the vicinity.

Stomach contents - (examined later)

~~Sex~~ - Contained (apparently) pigeon feathers (white), nothing more.

Sex - ♀

The bird was in most excellent condition having a great quantity of fat not only outside the abdominal wall but a great gob as large as my thumb inside as well, in mesentery of the large intestine.

Accipiter cooperii.

Jan 23, 1932. Ad. Cr. Ranch on the way up from the main entrance gate, about by the little pond there: As I drove past, one of these rapids darted across the road, from out of one thick clump of trees into another thick clump — in the usual elusive style.

Feb 15, 1932 Ad. Cr. R. By the quail enclosure. Some one bird, just for a moment, as it darted through the trees. This is the first individual of this species which I have seen since the killing of one in the pigeon house, mentioned above.

Feb 22, 1932. Ad. Cr. Ranch, Same place as under an. 23 above. One bird darted out of the underbrush and made off, four or five feet above the ground, as I drove by.

Feb. 27, 1932. Ad. Cr. R. See under Buteo l. calurus p. 115 for mention of a Cooper hawk holding the field against twenty swooped upon by a redtail who also claimed this section as its territory.

Feb 29, 1932. Same place as above, as seen from the quail enclosure (to the

designated hereafter as Q. I.). I caught sight of a bird of this species - indeed, in all likelihood, the same individual as seen Feb. 27 - circling in the same place and same manner as on the other occasion (see preceding page), that is, high in the air (250-300 ft), in small circles, part of the time on set wings and part of the time with the aid of quick wing beats, just as Cooper hawks and Duck's like the sharpies do often do. On this day the red tails were not in evidence very much of the time, and I saw none during the time that I watched the Cooper hawk.

April 20, 1932. Alp. br. R. between Kate's house and the experimental quail enclosure (designated as Q. I. hereafter). One seen for just a moment by E. L. S., Sr.

April 23. Alp. br. R., by Q. I. See under Lophortyx, this date, for a full account of the attempt of a cooper hawk to catch a quail.

May 18, 1932 About two weeks ago, while

Accipiter cooperii.

watching red tails from the east side of Los Pinnacos Canyon, I saw a Cooper hawk flying low over the tree tops of the canyon bottom. Today I twice heard the kek, kek, kek of this species near the Q.D. about 9:30 A.M. and he second time saw the bird as it flew over the trees, toward Los Pinnacos Canyon. Undoubtedly the species nests here in the vicinity, probably in the canyon named.

Aug 25, 1932. Alp. Cr. R. See Lophortyx p. 338 for another attempt of a cooper hawk to catch the Q. D. quail.

Sept 6, 1932. Alp Cr R. See Lophortyx, p. 35? (35 – another) for still another attempt. Seems to be an immature bird.

Sept 11, 1932. Gilkey Ranch, Pinnacles (Galedad P.O.), Calif. See Lophortyx, 355, for another attempt.

Sept 13, 1932. Alp. Cr. R. See Lophortyx p. 357 for still another attempt on part of same(?) immature bird

Sept 18, 1932. Alp. Cr. R. See Lophortyx p. 362 for still another on part of same? bird.

Sept-21 – See Buteo b. calurus p. 137 for

an account by Gordon Trine of the greater agility shown by cooper hawks when chasing quail, as compared with a redtail.

Oct. 6, 1932. Alp. Creek Ranch near A.D. Walking past an outcropping of brush at the edge of the barley field, two quail got up almost under my feet but almost immediately plunged them-selves down into the brush again. An instant later a third got up right near and then suddenly a cooper hawk that I had not seen at all, darted from its perch in some low bushes about 50 ft in front of me and took out after the quail. The latter gave the loud frightened "pu-ttp" call which quail give when frightened by hawks and darted off through an opening among the trees and off out of sight into the woods with the hawk hardly ten feet behind her. Why she flew high instead of plunging down into the thick brush I don't know. There was a regular jungle there for her

~~to retreat into~~. What the outcome of the chase was I don't know. I heard no sounds from either bird after they vanished. The hawk was flying at least as fast as the quail, seemingly. Looked like a quail.

Evidently the hawk had made at least one try at the quail before I came on the scene and was lurking quietly in the brush, while the quail remained hugging the ground, each waiting for the other to make a move.

This hawk is probably the same one noted so often these days. I think hunters, old timers etc. are right in believing that cooper hawks hang around a covey and keep after it day after day, gradually reducing its numbers.

Oct 13, 1932 - See under Loghorlyx, p. 376, for probable attempt of a c. hawk to catch quail again.

Nov. 5, 1932 Alp. G. R. ob. 10.30 A.M. of a cloudy day. I kept hearing a thin, high-pitched some what rasping single note

hay, hay coming from near the boat house. Always it came from the same place; a series of 3 or 4 of the notes just described, then a pause of a minute or more, and then the same all over again. Frequently it seemed that another cooper hawk joined in with similar cries; at least there were sometimes apparently two going nearly simultaneously, like alarm clocks out of step.

After about 15 minutes of this I spotted down here. It had roamed the night before, so that I could move almost without a sound, even where the dead leaves lay thick underneath the trees. For this reason I got within about fifty feet of the bird from where came the sounds without being detected. Even then I could see nothing, however, for all the trees (black oaks, madrones) were bare together, and it was not until the little swish of branches made by the jumping-off motion which is characteristic of large birds leaving trees, that I caught a glimpse of the cooper hawk. It was

out of sight in a moment, of course, behind the trees, and I did not see the second bird (if any) at all. What the reason was for the ones I do not know. The characteristic elusiveness of the birds is well shown, however.

Apr 23, 1932 About 2:30 P.M. the cooper hawk (or one of them) that lives around here made another try at the Q.D. quail. He alighted on top the Q.D. wire, and must have seen a quail crouched in the grass directly below him, for he kept walking about over the same spot, sometimes flapping one or twice, for a distance of about 2 ft, and then alighting again — all the time keeping within a radius of 3 ft of the same spot, and looking down. A peculiar feature of his behavior was that the whole time he would at intervals give a little, short, low, peeping single note, about like the cry of a very small chicken that was lost. I suppose that the cry indicated eager-ness or a similar emotion in the

hawk, but actually it produced a ludicrous effect, as though the bird were bewildered and scared. Perhaps this cry is analogous to the hu-eep, hu-eep of the red tail — or to the chee-op chee-op given by my eagle when it was given its perch not to tease us. The cooper hawk is evidently a bird of the year.

Its lack of concern at the sound of human voices was shown by the fact that Gordon Rue and I talked steadily inside the shack, 30 ft from the bird, during the 10 minutes or more that it was sitting on top the cure.

Nov 29, 1932 Alp. Co. P. See under Aphelocoma p. 12 et seq. for account of jay giving other birds warning of the approach of a hawk.

Nov. 30. The pole traps which I set up on the corners of the sparrow hawk cage to catch a ♂ sp. hawk, caught two cooper hawks instead. The first of these, the bird of the year that has been making so bold with the premises for sometime past,

Accipiter cooperii

probably got caught while he was trying to get at the numerous sparrows that I saw keeping in a part of the sparrow hawk's cage. When I arrived at 4:15 P.M. he was already caught and on the ground, and another cooper hawk, lured thither by God knows what sinister motive (cannibalism, sparrow-hawk-icide, or a taste for passerine birds) was in a near by tree. I left immediately, and did not get back until about 8 P.M., when I found that this other hawk, a fine-plumaged adult had been trapped, and had just been killed by a horned owl (see under Bubo p. 50).

The legs of the birds, where they had been caught by the traps, were broken and hanging only by tendons, in spite of the fact that I had fixed the trap jaws so that they lacked an eighth of an inch of closing.

Data on the hawks as follows:

	Weight	Sex.	Stomach contents
Iris yellow-green	30 3.6	♂ imm. ♂ ad.	Remains of small bird (saved for further ex.) not particularly fat
yellow-orange	459.7	♀ ad	meadow (?) mouse

Two ovaries fat.

Accipiter cooperii

Dec 15, 1932 - See Lophortyx, p. 429-31 for account of unsuccessful attempt of a cooper hawk to catch quail.

See p. 433 for account of way in which predatory species can pick up sick birds.

Dec 31, 1932 - Have seen a cooper hawk three times during the last week near the P.O. My killing trio has not exterminated them, evidently.

Feb. 8, 1933 See under Lophortyx, p. 467, for mention of quail taking to trees when chased by one of these hawks, and possible results in the shape of little food picked up during that time by the harassed birds.

Feb. 20, 1933. Pasly Place, woods behind house, (Mr. Br. Ranch). A cooper hawk apparently still haunts this region (see Feb. 8, 1933, above); also, the quail are disappearing, that is, the covey is dwindling at a rapid rate. Today while I was stalking through the woods looking for quail, a cooper hawk darted noiselessly in and out through the woods in front of me, apparently on the same errand. He swept through the woods in a wide

circle, leaving at about the point where he had first entered, and flying about 20 feet above the brush. It happened that not a single bird, not even a sparrow rose or cried out or showed fear during the time that I watched him.

March 26, 1933, Mendego Section, Alpine Creek Ranch, lonely, poison oak-covered hillside. Hearing a tremendous racket from jays (both species) and the cries of some bird in distress I pushed down hill through thickets of poison oak 7 ft high, to investigate. The commotion had been in progress more than five minutes before I even started, yet it continued, including the cries of the bird in distress during the ensuing 3 minutes that it took me to (more or less noisily) climb over and through the matted poison oak to the scene of events. At last, when I was less than 20 feet away, the various attendant jays (about 10 of them) scattered and

Accipiter cooperii.

fled, and from low downy at the edge of a dense thicket of poison oak, a cooper hawk flew up and away, empty footed. On the ground at the spot where the hawk had flown up, were many long downy (flank & rump?) feathers of a jay, as well as a flight feather, some of them blood stained. However, I was unable to find the victim's body. Since I had continued to hear its cries of distress up until the time the hawk burst from cover, I think that it had not been killed and that it escaped perhaps to die later. Probably the hawk was merely plucking it at the time that I arrived. The feathers indicated that it was a Cyanocitta species. This is the first time that I have known a jay to be victimized by one of these hawks and from the sounds he (also his 'kindred) must have protested vigorously. Both species of jays were doing the mobbing.

Mar. 31, 1933. Same place as above. I saw what was probably the same hawk fly-

ing through the trees there today. He evidently has his regular beat there.

April 1, 1933 Same or one as above; perhaps the same hawk. When I caught sight of him he was flying over the tops of the trees with a small bird, such as a golden crowned sparrow, in his claws. The bird was drawn up close to the body of the hawk not held dangling from extended claws.

April 14th, 1933 Alp Cr. R., by Q.D. an immature flew over the Q.D. It is the first I have seen in the vicinity for a long time.

Ob. April 15 Received two cooper hawk stomachs from Chas. H. Edmondson, trapper for Gordon H. True Jr. Taken 14 mi. n.w. of Lancaster, Calif. a month or so prematurely: Tad - contained remains of a roadrunner (feet, feathers, long bones); one small juniper twig (probably accidentally ingested).

Dit two out that the roadrunner was just as bait.

Sin. contained one ground squirrel.

May 31, 1933, Alp-Cr-Ranch. A cooper

Accipiter cooperi

hawk alighted on the Q.D. for a moment, then sailed away, today. This is the first I have seen for some time.

July 29, 1933 – See Loghorty's, p. 590, for mention of three young quail being killed by a cooper's hawk, up at Ralph's orchard, while they were in the trap there.

Saw a coopers hawk pounce (of course unsuccessfully) at Q.D. quail about two days ago, too.

Sept. 2, 1933 (Have been absent since July 31). Heard a great commotion – flying birds, much chattering – in the barley field by the Q.D. Discovered an im. cooper hawk flying at first one and then another quail composing a covey which was at the edge of the field among the wild rose bushes. Each bird (2 that I saw), managed to dive into cover at his dash, so that at last seeing me he left unsuccessful.

Carl Bélanger, working at Ralph's, told me that a coopers hawk, probably the same one, has been hanging about the

vicinity of the swimming pool for some time. Once, some time ago, he saw it flying through the trees with a small bird in its talons. Recently he twice saw it catch small, (1/3 grown?) young from the large (ab. 25) covey which feeds near the rose-brush hedge by the jumping-horse training field (see Map I). Evidently, as in wild geese according to Jim Moffitt, the first few weeks (months with geese) are the hardest in the life of a quail, due to inexperience.

Sept. 9, 1933 - See under Laphortyx, p. 600, for account of (what is probably the same) cooper-hawk killing a young quail at trap 5, possibly frightening others into roosting on the ground.

Sept 12 - 1933. Today I saw tipped one of the above while he was on top the P.O., trying to get the quail within. He flapped and ran through the brush-choked woods at an astonishing rate of speed, quite unlike what a wounded red tail would do

under such circumstances, so that I was unable to catch him. Undoubtedly he will not recover, however, there is at least one more of them in the vicinity. One killed two quail in trap 2, also (see Lophortyx, p. 604).

Sept 20, 1933. An imm. ♀ accipiter, wt 460.9 got into trap 1, killed a quail inside it (no A 438108); was itself killed. It had previously killed another quail A 438218, evidently somewhere on the outside of the trap, some time before this.

~~Sept~~ Oct 1, 1933 - ~~One~~ A cooper hawk entered the pigeon house, killed and fed upon a pigeon there, got lost, was shot. They saved the bird for a while but I did not return until several days too late.

Oct 7, 1933. Alp. G. R. shot another cooper hawk from off the Q.D. Wt: 289.2, 9 A.M., 8 imm. Stomach contents apparently feathers and bones of a quail. Confirmed April 16, 1939.

October 14, 1933. Alp. G. R., by Q.D. Heard a shrilling of alarmed chickadees and

caught sight of a ♂ cooperii (or possibly a ♀ velox ?) which was flying rapidly and easily through the dense tangle of oaks, coffee-berry, and other shrubs, at a height of less than 3 feet from the ground. It was remarkable that such a large bird could negotiate such twiggery, in such dense, dark woods, with such ease.

October 19, 1933. Cooper hawks seem to be filling up vacancies made in their ranks here. Saw one darting swiftly through the trees near the Q.S. gate today.

Oct 26, 1933. Heard commotion from Q.S.; saw a Cooper hawk on top of it, as usual.

Oct 28, 1933. I think I have mentioned earlier the habit of Cooper hawks of sitting in the seclusion of the trees and uttering at regular intervals their staccato (fairly) high pitched kek-kek-kek-kek, for a half hour or more at a time. Hearing one today, it occurred to me that since these hawks do not sit on exposed places and offer themselves to view, as do most other hawks, and since they

only somewhat infrequently soar high in the air, the noise described may serve the purpose of announcing possession of territory. Other birds, as flickers, and quail, do not show alarm when this noise is being made, provided the maker is not seen by them.

accipiter relax → Oct 28, 1933. Caught in ♂ accipiter relax, wt 99.7, 5:30 P.M. in trap 1. No bones, feathers, or other remains were in the trap and none of the other doors were spring. Perhaps he had been getting birds in there on previous days. Stomach was empty.

Nov. 11, 1933. Under this date Chas. J. Hayes, San Bernardino, Calif. [F. & G. Quail Refuge Trapper], writes: "The other day I killed a Cooper hawk that dove down and grabbed a quail, while I was feeding them. I also killed a red tail flying with a quail in its claws... I cut them open and both of ... [their stomachs] were empty."

"... Lately I found a quail in a tunnel with its head eaten and there

Accipiter cooperii
(+ velox)

was also a barn owl in the tunnel. Of course everybody says the barn owl doesn't bother quail, but that twice that I have run into quail with the head eaten, and both times there was a barn owl there!

Dec 19, 1933. A stomach taken by Edmondson, State trapper on quail refuges in vicinity of Palmdale, Calif, contained 2 lizards, evidently Scelophorus.

Date Oct 1, 1933. Accipiter velox

A stomach taken by Chas. G. Hayes, Oct 29, 1933

sharpshin — trapper in same capacity working on quail refuges in vicinity of San Bernardino, contained feathers and bones of a ♂ Lophortyx c. vallicola.

sharpshin → Another A. velox taken by Hayes was flying off with a ♀ Lophortyx in his claws (bird was A 7193, State Game Comm. band series). Date was Nov. 14, 1933. This bird is the one mentioned on p. 27 Accipiter cooperii, being in reality a sharpshin.

Dec 20, 1933. Alp. G. Ponch. Trapped one (A. cooperii) inside a quail trap, which it had entered to catch and eat a golden cr. sparrow. Wt. 462.0 Sex ♀ imm. Stomach saved - contents evidently a golden cr. sp.

Accipiter cooperi
(& velox).

Several stomachs submitted by Chas. Hayes (birds in flesh; stomachs removed by me) gave following data:

Sharpshin – Nov. 27, 1933, Foxley Refuge (8 mi. S. of Perris, Calif). Shot by Hayes while carrying off headless quail A 7052 (state game farm banded); the head was in its stomach.

Cooper hawk – Dec. 28, 1933, Las Flores Refuge, 10 mi. W. of Camp Cajon, in Summit Valley, on rd. to Day Creek. S.B. Co., Calif. Quail band A15153, and a few feathers, found in stomach of in ♂.

[For data on ability of the ♀, at least, of A. velox to carry the body of a quail, see under A. velox in Grinnell, Dixon, Linsdale's account of the Lassen Peak biota.]

Cooper hawk – Dec. 21, 1933 Las Flores Refuge. Fragments of lower mandible, also head feathers, of a ♂ quail.

Jan 20, 1933. Caught at Calif. Ranch another Cooper hawk (♂) in a quail trap. Wt. 347.9. Had in its stomach a brown towhee, possibly caught in

Accipiter cooperi
(also velox).

the trap.

See under Lophortyx, p. 658 et antea for account of the effect of Accipiters on quail, and other game bird, populations

A stomach (whole bird sent) taken by Chas. G. Hayes 11/2/34 in S. B. Co. Quail Canyon, Refuge) contained quail. no # 9325.
Another, taken by him same place, 1/5/34, contained skull, foot, of a white.

Stomachs taken by Chas. Edmondson, near Palmdale, Calif., on quail refuges, are as follows:

Cooper's hawk ad. 3/1/34 Fur, bones, feces of brush(?) rabbit.
" ♀ 3/9/34 Empty, ~~but bird seen~~ chasing a quail".
Sharpshin 11/2/33. Fur, toe nail of rabbit.
Sharpshin

Sequoia National Park, April 17, 1935. Lon Garrison, C.C.W. camp foreman, told me that once when he was riding along a trail accompanied by his wife he frightened a spotted owl out of a nearby

tree, and as it flew away, a sharpshin suddenly appeared out of nowhere and dove upon the owl striking it with such force that the latter fell dazed and spread-eagled into a bush.

The hawk was about to dart in for another attack, but seeing the garrisons retreated instead. When Lon picked the owl up it was still dazed and offered no resistance, however, no external injury was visible. After a few moments it revived and was released, whereupon it flew off in apparently normal fashion.

Sept 16, 1934. Summer Ranch (N.W. 1/4 Sect. 17, Twp. 7S, R 3W), San Mateo Co., Calif. I have already described the Cooper's hawk's habit of sitting concealed in the brush and uttering its characteristic kek-kek-kek noise. I have also, today and at other times, heard the bird give another note while sitting concealed in this manner. Whether this other note is made by adults or young I do not know. It has not been accompanied by the kek-kek note

90 71 Accipiter cooperii
(and nelox)

when I have heard it. The note is a thin, high pitched wheezy peep, peep, p-e-e-p or ch-e-e-p almost exactly like the ch-e-e-p alarm note made by California quail when they are badly frightened, only uttered more slowly by the case of the hawk. Of course the hawk, unlike the quail, is not frightened at such times. What the significance of the note may be I am not sure, but my guess is that it may be uttered by birds of the year as a sort of hangover from the time when they were in the habit of calling thus when begging food from the parents. This is a hypothesis only; an analogue, if this is correct, would be the plaintive ch-e-e-op (or hueep) ch-e-e-op cry of immature (and sometimes of adult) red-tails.

Jan 1, 1936 Maurice Rapley, lifetime resident and conservationist in the Santa Cruz Mts, 7 mi due west of Palo Alto, next to my ranch told me that once he saw a Cooper's (or ? sharp-shin, possibly) hawk fly in close pursuit after a covey of quail just as they were diving into thick cover.

When the partridge quail which this hawk was chasing dove into a dense tangle of poison oak and other brush, the hawk, never slackening its speed, struck the same spot a split second later with an audible crash, and was lost to view.

For a while Mr Rapley sat on his horse and waited to see if the hawk would be successful in its further pursuit of the quail but on hearing nothing further, he went over to the brush to investigate. To his amazement he found the hawk tightly wedged in the interstices of the brush at the point where it had struck, and quite dead as a result of the collision.

I recall that in Wickford, R. I., about 15 years ago, my father told me of seeing one of these birds plunge into a bull briar patch while in pursuit of a bird, and become so tangled in the briar patch that my father almost had his hands on it before it got away.

Agelaius ~~Bicolor~~ 2.

5/7/31 L.B.V. Ref. n of 3 T. towers. As I drove by saw one perching upon top another which was prostrate on the ground; the former flew up as the car went by and lit about 15 ft. away in the grass, but the under bird remained where it was, prostrate on its belly, with head hunched down as though to escape my view. I waited at a distance. Inside of 30 seconds the latter bird was back again, lit beside the prostrate one, and for 1½ min. or more rained blows with its beak steadily upon the body of the latter, which offered no resistance — it was like the story of the man with the mace who killed the defenseless man in Romola (or somewhere). Finally the victor stopped and flew to a tree 100 ft distant where he perched for a minute as

Agelaius bicolor

two then flew back past the prostrate bird without stopping and on to a rush patch. Just as he got here however another redwing came flying toward him (territory owner) whereupon he turned once more and flew back past his victim and on to Mud Slough where he disappeared.

I picked up the conquered bird; its eyes were shut and it was breathing hard. All the time since I have been writing this it has been lying on its back and kicking violently without being able to turn right side up — like a bird shot in the head; its movements are convulsive, indicating brain injury. Next 7 a.m.: Dead as a door nail. See Xanthocephalus page, however for account of bicolor being wounded. # The bicolors here nest in very low rush grass and weeds in solitary fashion over most of the flood lands. They have been nesting since about the time I established the 2nd Butte camp.

5/8/31 L.B.D. Refuge by Holt. A Osprey chasing a great blue heron and either riding its back or nothing a feewinches but. The heron swerved this way and that — condemnedly — but without result until the blackbird at a distance of 50 ft from the starting point returned to his post.

5/9/31 L.B.D.R. 2nd Butte camp. Saw one chasing a black tern. The latter twisted and dodged but the redwing stayed right with him until out of his territory.

~~Photo~~ Listed — 1 nest four eggs low down in a ~~grass~~ weed patch on the side of a bank - 4 eggs
Salmon Slough floodlands
1 nest in a tule clump 3 ft up - 3 young about 2 days old Salmon Slough floodlands.
1 nest in rush grass 1½ ft over water - 4 eggs

5/23/31 One ♂ seen chasing a black crowned night heron today, at Mud Slough.

5/24/31 L.B.D.R. by 2nd Butte camp tent. Nest with 3 eggs; ♂ has been watched for many days and is aggressive in defense of territory from other blackbirds. There were 3 eggs yesterday too; must be full set.
1 photo

5/31/31 L.B.D.R. w. of 2. Butte camp. Several times I saw one or two individuals chasing

A black crowned nightheron that scared up out of the willows as I approached.

Nest with 3 eggs Ay 2nd But. ♀. (5/24/31) now empty and birds not about — must have been some disaster.

→ Nest in process of construction (nearly finished); ♀ seen flying from 100 yds away with a piece of yellow dead grass. Nest marked with piece of paper.

6/2/31 Nest mentioned just above. One egg in it, a shade more of lining in nest but other wise as last time in appearance. The ♂ was seen perched in the same weed with a ♂ meadow-lark about 18" away without offering to molest him (that was while I was still too far away to have scared either one) ♀ not on nest.

6/3/31 Nest mentioned above 2 eggs now; ♀ not on nest.

I guess I didn't mention that on 5/23/31, while with Dr. Gayle Pickwell we found a nest by the 3d tower in a marshy but open place between two sloughs, with 3 (?) eggs. The grass at this point was only about 6" high (salt grass), with a few scattered

Agelaius phoeniceus

weed stalks pushing through — but only a few inches higher — at intervals. The nest was attached to two or three of these but they were not thick enough to offer any concealment and were so short that Pickwell and the rest called it a ground nest

It was not really on the ground, as diagram shows, indeed, had it been so it would have been concealed by the grass instead of conspicuous as it was in actual fact. The birds, instinct — even if slightly gone astray (there was plenty of suitable cover within a few feet) — nevertheless demanded that the nest be placed at an elevation, no matter how meager.

6/4/31 L.B.D.R. by new duck pen. When a pair of cinnamon teal flew past a blackbird chased the near-most for several hundred feet, following their zigzag course perfectly easily. The near-most duck was of course the ♂ and neither of the two seemed to enjoy the chase for they kept changing their course in consequence. After the blackbird had finally left them a stilt took up the chase.

Agelaius bicolor

6/5/31 Nest mentioned on p. 4, 6/2, 3, 31; visited daily — yesterday, when the third egg should have been laid, did not visit the nest; today there is only 1 egg, with no bird sitting, although the ♂ sits and gives the alarm note as usual. Cannot make out what enemy did this; there were no mouse paws and no broken shells; if a snake why did it not take the last egg? (or was that laid since?).

Another nest nearby — empty on 6/3/31, now has two eggs in it.

6/6/31 First nest mentioned above is now empty! The marauder must have returned; second nest has 3 eggs; bird has not yet begun to sit.

6/7/31 Small creek ‖ to Salmon Slough. Nest with 4 eggs 10 feet up in crotch of a willow overhanging water. Nest was well out in top branches (swaying).

photo.

3 l. tower flood lands — 1 nest 4 egg in Scirpus over water (8" above it).

f. lands just s. of 3 l. tower. 1 nest of 5 eggs in yellow clover and Scirpus 8" above shallow water.

ditto with 2 eggs and 2 ft from edge of pond. ♀ flushed!

ditto again; now 2 eggs, but didn't flush.

Agelaius bicolor

"2nd" Nest visited daily: 4 eggs O.K.

6/11/31, L.B.D.R. by "coyote pond", s. side Refuge. Males don't hesitate to attack every ♀ of their own species, it seems. Just now I saw 2 ♂s fly down within a few feet of each other before me, amicably enough. Hardly were they alight when a ♂ came sliding down out of the air on set wings with a harsh note and made for one of them. This one dodged into the sedges and a moment later flew away. The other one came out onto the mud and perched, but the ♂, who had risen up into the air at the first ♂'s departure was after her also. You could see her cock her head up at him for a moment and then she left as he descended upon her. He chased her 100 ft away first, then followed her up again, and this time she flew away across the nearly pond.

"3rd Nest" visited daily: 4 eggs O.K. so far.

Agelaius ~~phoeniceus~~ tricolor ①

3/7/31 Los Banos Duck Refuge, Merced Co. Calif. Pole slough just north of Ruth Lake. Large flock - 600-700? - all hidden in the tules, so that we first became aware of them by the din of voices and not by sight. When we drove over there they rose up into the air for a moment and they settled down almost immediately on the tops of the tules - where they could see us. Although they kept up an increasing din when we sat still and made no noise the entire flock of birds would suddenly and instantaneously cease all sound if we made any loud noise. Perhaps a single individual would call once or twice, but this only served to intensify the general silence. So too if any of the flock rose to leave, or if another small flock came to join them they would cease their noise until the newcomers has settled for

those which were leaving had left the tules, [although only the noise making organs part around minimally leaving a bush].

Ammodramus savannarum
bimaculatus 1.

6/8/31 Los Banos Duck Refuge, Los Banos, Merced Co. Calif. Edge of marsh by 2nd Butte camp. Two of these birds watched at close range (50 ft) with 8x12s as they moved about together from one clump of weeds to another; identification certain.

Anser albifrons

2/15/30. 1 mi west of West Butte, Sutter Co. Calif. Flocks of 10, 15, 20, flying north up river, calling, in A.M.

2/16/30. Large flocks flying in same direction during A.M.

9/21/30. Los Banos Game Refuge, Merced Co. Flock of about 85 resting on dry flats in vicinity of Button willow Ponds.

2/23/31 See under waterfowl censuses, Los Banos Duck Refuge, Los Banos, Merced Co. Calif. Also notes for this date under Chen. These geese seen earlier in numbers but at this time are very few in number, being least abundant of the three kinds (Chen, Brenta, Anser)

2/28/31 Very few seen at L.B.D. Ref. Only one or two large birds during 1½ hrs observation of gray flocks and I am not at all sure there were Anser.

3/27/31 L.B.D. Refuge. Still present, and apparently more abundant than during February; flocks of 50 and more may be seen at times.

4/2/31 L.B.D.R. Rather abundant now; several hundred, all told have been seen today — mostly in flocks of 50—100 feeding on the ground at many points on the Refuge.

Anser albifrons

4/12/31 L. B. D. Refuge. This is the only goose left now and seems to be actually more numerous than when the Brants and Chen were present. Flocks of 25 or less may be numerous in different sections of the Refuge everyday — the flocks are seldom more than 25, however.

4/20/31 L. B. D. R. Practically all the geese are gone; today I heard and saw a flock of about 25 off in the distance, low down, which I surmised was of this species.

4/28/31 L. B. D. R. (came down yesterday). Have seen no geese of any kind this trip. [But:]

4/29/31 L. B. D. Refuge - vicinity Salmon Slough pump - flock of about 20 seen flying before the wind down low.

4/30/31 Flock of 30 or more spending the day at e. end of Buttonwillows.

5/8/31 Buttonwillow pond. Seven birds (!) (See under Brants, also.)

5/20/31 L. B. D. Refuge By 2nd Butte camp - One crip (wing) on bank of small slough together with one able bodied individual. The well one flew off 1/4 mi and alighted while the crippled one dashed into the water flapping and calling.

anthus rubescens

3/8/31 Los Banos Duck Refuge, Merced Co. Calif. by Holts place. Individual perched on a strand of barbed wire fencing; flew when we approached.

3/21/31 L.B.D. Ref. 6:30 A.M. While I was lying in my tent without moving a pipit fluttered into the tent — (that's it came in slowly and not in the direct flight of the open ground) — and alighted on my blanket covered knee. There it sat facing me and cocking its head from side to side, without uttering a sound or moving other wise. At the end of that time it fluttered out again, giving its characteristic call this time.

Aphelocoma

10/4/30 Los Banos Duck Refuge, Merced Co. Calif. Mud Slough by Ford. 2 birds, one 100 yds behind the other, observed flying from one clump of willows to another. 3 minutes later another bird — same place, same direction.

9/21/31 Alpine Creek Ranch, San Mateo Co., Calif. By foreman's house. Individual seen flying into (artificially planted) pine tree with a large acorn in his beak. The acorn must have been 1½ - 1¾ inches long and 3/8 - 3/4" thick. It was held with the base toward the bird's throat and the tip protruding about 3/4" past the tip of the bird's bill. The jay stood in the tree near the top, without shifting the acorn, for two or three minutes hopping about from branch let to branchlet occasionally. He seemed to be eyeing me. Presently another jay drifted over to that tree, and the first bird dropped from the tree and dove out of sight over and through the brush as the other approached.

A few minutes later. Just as

another one flying by — screeching — with an acorn in his bill

9/27/31 Alp. Cr. Ranch By chicken coop, saw another jay flying with a large acorn. The acorn crop must be good this year.

10/1/31 Alp-Cr. Ranch. By chicken house. A cooper-hawk observed to buy for a chicken, and his maneuvers watched subsequently for 15-20 minutes (see Accipiters for this date); jays were squawking and flapping about in the trees all about there, and do so every day so that a minute rarely goes by without one being aware of them — and yet, during the time the hawk was present didn't hear a single jay scream, in fact it appeared as if they were skulking about apprehensively, or at least watchfully. After the hawk had gone I noticed two in the top of an oak, very silent and apparently watchful, perhaps the idea that jays serve to warn other birds of the presence of a

hawk or other enemy is mistaken, then — at least, I remember now, that at no time when I have seen an Accipiter around here (see previous note under Accipiter), have I heard any unusual commotion among the jays, of the sort calculated to drive other animals. The impression I got was that when the hawk was about they were silent, for once.

May 26, 1932. See under Lophortyx c. californica, pp. 199-200 for accounts of Calif. jays killing ① 6-7 baby chickens at University Poultry Farm

② Several broods of new born nestlings in Strawberry Canyon, Berkeley, Calif.

June 8, 1932. See under Lophortyx, p. 230 for further accounts of lack of dependance of quail upon jays as warning agents in time of danger.

Yesterday I heard a sudden, unusual tuit, tuit, tuit; or sip sip, sip, on the part of two long-spurs at the fence just W. of the Q.D. (= experimental

Aphelocoma

quail enclosure), and blended with it was the sound of a jay, calling in his usual loud-mouthed cha cha cha tones. The song sparrows called just as they do when one finds their nest or young (also, there is, or was, a nest of them in some rose bushes 100 ft away). They moved through the mulfans, keeping in the vicinity of the jay for several minutes. Finally the jay took himself off, and a few minutes later the cries of the songsparrows subsided. I was strongly impressed with the notion that the jay had robbed the songsparrows of either an egg or some young, although I was unable to see as much, due to the thickness of the cover.

Shot another jay, later. Its stomach contained insect fragments (legs of beetles?) and a quantity of what looked like small pieces of acorn. Sex ♂; testes small: o; wt. 95.3.

June 21 - Today I began shooting

jays, with E's help, in a wholesale way, for stomach examinations. Twelve birds were shot all in vicinity of Q.S., mostly down lip-root house. Since wts, stomach content, etc records go into my old weight journal, I will not enter them here. It is enough to say that the stomachs contained (1): stones of varying sizes up to 4 mm. in length

(2). ground up fragments of vegetable matter, unidentifyable

(3). Seeds of various sorts

(4) fruit pulp, seemingly of wild black berry judging from the black color with which it stained everything.

(5). In one of the stomachs were 4 bone fragments, possibly of bird bones (perhaps of quail?). These were saved for examination, in a vial (later turned out the bones of a small mouse)

The stomach contents were saved, all but one, which was inadvertantly thrown away.

The sex ratio was 8 ♂, 3 ♀, and one ?

The bird, for carrying, squalling

cha, cha, cha, cha, cry is given most frequently just as the birds take off in flight or, too, when they are in mid flight. Probably this is a feeding call. The single chi-cee call is usually given when the birds are perched in the depths of a tree. Both these calls probably serve to keep individuals in touch with one another.

The jays are decidedly tame (Gos jays) allowing one to approach within a hundred feet of them in the open, and often much less if one is under the trees and is quiet about it.

The birds usually respond to a squeaking by mounting to the topmost branches of the trees where they have the vantage of the speaker. They are silent in their curiosity however, and usually do not approach within less than 60 feet; indeed they invariably lose curiosity after a few squeaks or else become alarmed after

a clear view of the squeakers, for they fly off without a sound after a moment or two. This tendency is so marked that I have come to use the squeaking only occasionally, as a last resort to lure them closer.

July 4, 1932. Shot 12 more at the same locality. After this shooting the woods roundabout the P.O. have become nearly silent, whereas before they were clamorous all day long, but especially in the early morning and late afternoon, with jays. We must have got 90% of them. A considerable number were shot in, or near, a certain small plum tree by the boat house. The plums were no larger than cherries, but sweet, and they had attract a crowd of both Aphelocoma and Cyanocitta c. frontalis, both of which had, upon examination, skins etc of the fruit in their stomachs.

One clouded bone fragment was obtained and set aside from one of the

Aphelocoma

(note: [illegible])

Aphelocoma stomachs. All the stomachs were, of course, saved; their contents were as last time. In one or two insect fragments preponderated but in most it was vegetable matter.

The sex ratio was again, for some reason, in favor of the ♂s as follows: 9♂, 3♀

Has this something to do with the post breeding flocking habits of the birds. Most of the birds have a dimin reproductive organs very small: ♂ testes 0, 0, and females ovary; in two or three cases on June 21 we found testes thus: O, O. This is all recorded by drawings, in my cat. note book.

July 7 - One more jay, a ♂
July 10 " " " an imm; sex(?)
July 19 - More jays: 3♂, 4♀
July 20 " " 2♂, 1♀

In collecting these jays for stomach examination part were taken from orchards and part from woods and fields. In all cases quail had young in the vicinity. So far

Aphelocoma c. californica

there has only been one indubitable bone. The majority of stomachs contain fruit skins and pulp, also seeds, and, of course, stones.

July 21 - One more, a ♂.

July 23 - More: 3♂, one imm sex(?)

Sept 18, 1932. Alp. Cr. R. arch. See under Lophortyx p. 360 for observations on the slight (although observable) attention paid to the calls of jays by quail.

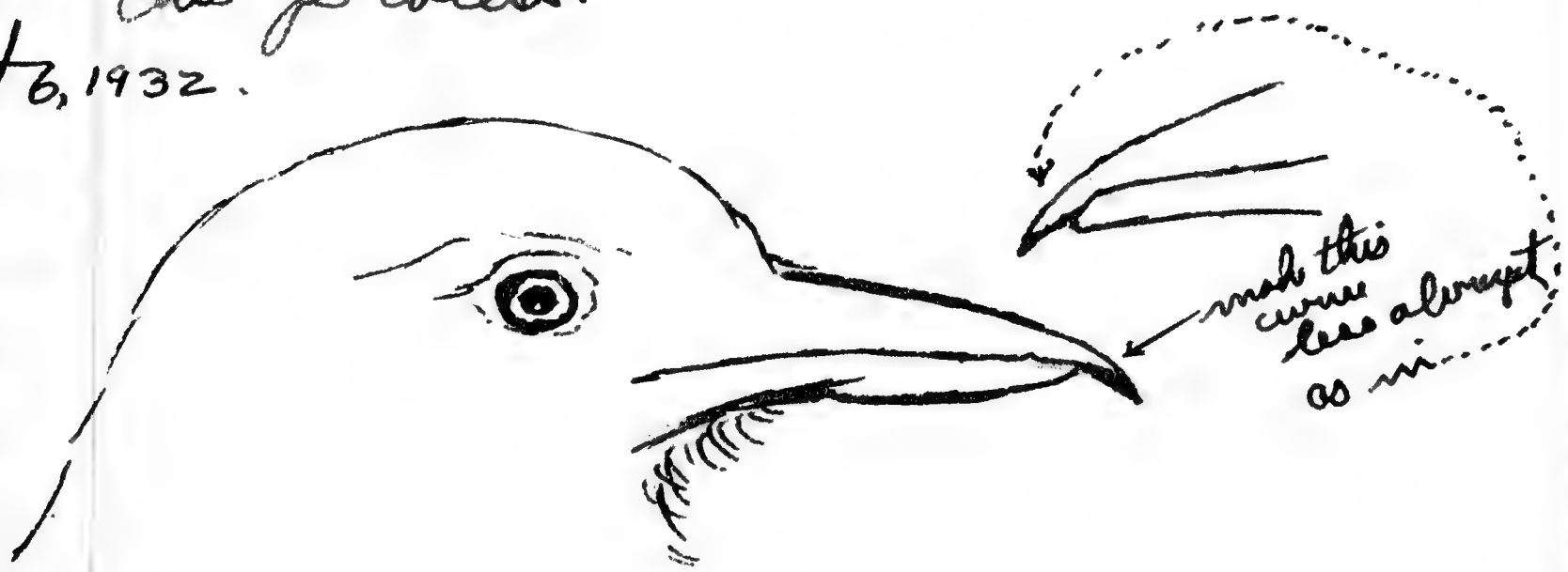
Oct 2, 1932. Alp. Cr. R. Three more jays shot (but stomachs not examined) gave the following weights:
♂ 98.1 ; ♂ 92.7 ; ♀ 83.9

October 6, 1932 Alp. Cr. R. The jays are just as noisy and numerous as they ever were this summer, in spite of the fact that we have shot a total of about 90 of them. Shows how population pressures tend to fill up a vacuum, I guess. At times they have been completely cleaned out around the Q.S. and the boathouse, but not for long.

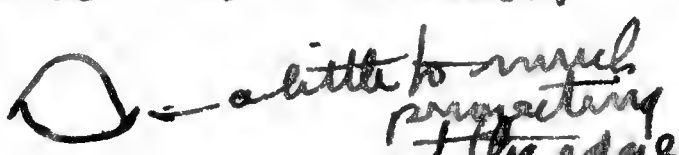
Within recent weeks I have noticed a peculiarity of jay flight which I don't remember having

observed during the summer. When the birds fly from one tree to another, or even from one branch to another, they make a peculiar, resounding, thumping sound with their wings. This sound is so characteristic, and so audible, that when one is hunting jays one can often tell that one is in their vicinity from this noise at times when they are out of sight and making no other sound. Perhaps this noise is just another way by which the birds keep track of one another. I am pretty sure that when they want to they can fly without making any such noise with their wings. As the moult of the wing feathers (?) is complete by this date, I am sure that the noise has nothing to do with this process.

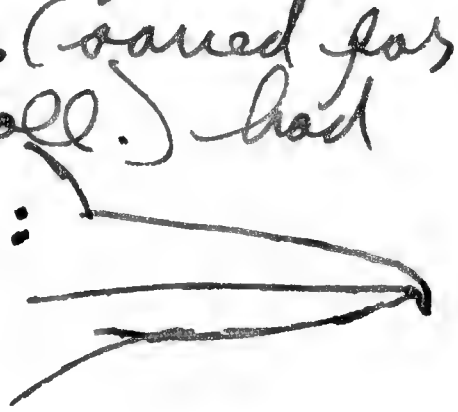
Oct 6, 1932.



On the preceding page is a sketch of the bill of a jay just shot. It is the second out of about 85 that has had a hooked bill. The right side has the edge of the upper mandible overlapping ~~at the~~ along the side as shown (this is normal), but the left side has the lower mandible overlapping along the side, as shown in the second figure (not normal). A Quenschnitt would show it about like this:



. One of the jays I got this summer (saved for the M.V.Z. skeleton coll.) had a bill about like this:



the hook being more pronounced, and shorter.

Oct 9, 1932 Alp. Co. P. Three more jays.

Wt	Sex
99.9	♂
93.8	♂
89.1	♂

Oct 13, 1932. See Loxoharlyx p. 377 for another example of feinting of jays to warn quail of approach of a hawk.

Nov 6, 1932. Weights of two more jays are as follows: ♂ adult 108.7

♂ 97.7.

The jays around the cabin are as numerous, or more so, than at any time this year, in spite of all our shooting. Thus does nature fill up the gaps.

Edel saw both this species and Cyanocitta st. fr. carrying the fruits of the Calif. laurel (Umbellularia) in their bills on at least ten different occasions today.

Obs. E. R. Blake

November 29, 1932 Today I saw the first instance of the warning that jays are reputed to give concerning the approach of a hawk. The episode presents only circumstantial evidence, but seems highly probable to say the least. I was watching a flock of golden crowned sparrows which were feeding in scattered formation at the edge of some tall dense brush. Some were on the ground and others were perched at various heights in the brush. Jays were calling and flying about a few hundred yards away. Suddenly

one of the jays cried cha! cha!, very staccato and sharp, and dived into the brush. Immediately the entire group of sparrows instantly ceased their twittering and singing and plunged like a single unit into the thick of the brush, where they remained without making a sound. The jay that made the sound was about 150 feet from them; it call was like similar to the usual cha! cha! cha! given when the birds are on the wing only it was this time limited to two chas, and these were notably emphatic. I kept an calling, and about a minute later glimpsed a cooper hawk just as it was slipping out of the tree in which it had been perched. The hawk was about 150 ft uphill from the jay, which in turn was some 150 feet uphill from the sparrows.

The question is considering the probable mental limits of the sparrows — how do they learn

to recognize the jays call as a danger signal?

Another question is - do cooper hawks ever attack jays. About a minute after this episode one of these jays flew freely across a small open space just as though there was no danger at all from hawks — something no quail for example would venture to do for at least 15 minutes (usually ½ hour) afterwards.

Oct 1, 1932. See under Lophortyx pp. 422, 423, for account of a jay that did cause the quail to run when it gave the alarm note.

Dec. 26, 1932. See Lophortyx p. 442 for another account like the above. See Otus asio, p. 3. for account of mobbing a screech owl.

Dec 31, 1932. One jay; wt. 90.5 sex ♀.

Jays have been visiting the sunflower heads in the garden during the last week or ten days just as have linnets and others. The birds perch upon the swaying, ripening flower heads, and leaning far over, so that their heads are close to or below their feet, they dig out some of the seeds, balancing

Aphelocoma californica

precariously the while.

Jays bob their heads in a characteristic fashion when they are perched upon some lookout post surveying their surroundings. The head bobbing is doubtless done for the same purpose as the bobbing of raptorial birds, but the manner in which it is done is different. Each bob is emphatic, that is, the head is rapidly brought very low and as rapidly jerked back; also there is an interval of nearly a second between each bob. The bobs are always vertical and there is never any swaying or side to side motion.

Shot a second jay: wt. 92.5; time 10:30 A.M. sex ♂.

Jan 2 another wt. 85. time 9 A.M. sex ♀

Feb. 3, 1933. Alp. Ch. Ranch. As an example of the potential blood thirstiness of jays: Shot an Aphelocoma and a golden crowned sparrow together, both banded, in a paper sack for about 6 hours. When I opened the sack I found that the jay had killed the sparrow and eaten its head entirely, the corpse being entirely headless. I next put

this same jay into a 100 lb. capacity burlap sack with a large number of golden crowns, thrushes, towhees, etc, and transported the lot 50 miles. At the end of about 5 hours I found that the jay had killed another golden crown and eaten most of the abdomen and its contents, the head being intact in this case.

Feb. 16, 1933 Pooley Place, Alpine Creek Ranch. As I suddenly rounded a dense thicket and came upon a jay it dived into the undergrowth with a single short cha! such as jays sometimes make when Cooper hawks appear. They give this noise when human beings surprise them, it seems.

Mar 5, 1933. Alp-B. Ranch. Another golden crown killed, and its abdomen partly eaten away by a jay which was left over night with it in a sack. Weights of 3 jays caught yesterday were: 93.3, 97.0, 90.8.

Feb. 21, 1933. While hunting for roosting quail with a flashlight near Mindego

Aphelocoma californica 17.

Mountain, Alp-Cr-Ranch, I found a jay roosting in the same live oak tree where the quail were. The tree was about 30 ft. tall and very dense. The jay was about 6 1/2 feet from the ground, in the outer foliage of the tree, at a place that was dense, although, not denser than almost any other part of the foliage of this particular tree. The jay flittered away upon being disturbed and was very evidently unable to see where he was going.

March 18, 1933. Alp. Cr. Ranch. Caught a jay in a quail trap and put him into the cage of our tame sparrow hawk. See under Cerchneis sparverius, p. 121 for an account of the failure of the hawk to attack (except tentatively at first) the jay, on account of the large size of the latter.

March 19, 1933. Brought the jay home and put it into our large cage in the parlor, by itself. It makes no sounds, but hops about nervously when closely approached, clinging at times to the side wires (1" mesh

poultry wire) and something even ~~to~~ the ceiling wire.

He eats mice (Peromyscus m. gambelii) that are thrown into his cage dead, also raisins soaked bread, apple, lettuce, hamburger, beef. Already he is tamer, but he will not eat when we are present, as yet. He has begun to show a reaction which is evidently a result of nervousness (i.e. state of apprehension + fidgetyness). This is his practice of pounding vigorously the wooden perch, upon which he stands, with the tip of his bill, when we move about the room and alarm him slightly but not enough to cause him to fly. Under these circumstances he will hop about on the perch, glance nervously here and there, and then pound the perch ~~one or~~ two or three times then "fidget" some more. Possibly in a natural state such rapping of branches may have some significance.

Mar 25, 1933 - Naturally tamer. He flits

about and fidgets if I approach the cage closer than about 10 feet, but with E that he is much more at ease. It is she who has been feeding him, whereas I have been away all week. This indicates the ability to distinguish between individual human beings.

When she goes into the cage and puts something to eat on the floor (mouse, raisins, apple), he will commence to eye it as soon as she has left the cage, and a moment later will hop down and proceed to deal with it.

He took a sip of water.

While he was eating a piece of beef — hammering it with his bill until he had pounded little pieces off — E. came into the room, 15-20 feet away, ~~and~~ but he kept on eating.

He tries to hide food which is left over at the end of a meal. (see Condor, 1932, p. 189-190) As there is no place in the cage to hide things — except the crack at the bottom (formerly used by

the sparrow hawk) which he ignores, he has formed the habit of pushing pieces of meat etc. through the wires of the cage out onto the end of one of the perches where it passes through the wire. He can retrieve such food when he wants it, if it does not fall off. He will go through this hiding reaction even when E. is only 6 feet from his cage.

E. saw him put a piece of meat down on the floor partly under a loose flap of paper, and then drag the paper over it, concealing it. Often, not content with where a piece of food is hidden, or perhaps because the impulse to hide is still unsatisfied, he will recover a hidden morsel and hide it all over again.

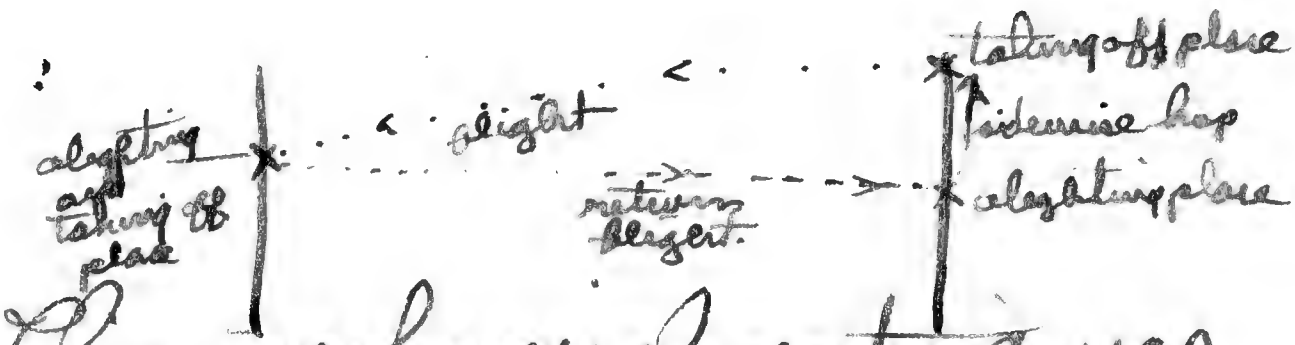
Mar 26 - See under Accipiter cooperii, p. 20, for account of this species, also Cyanocitta rubbing a hawk, which had captured a jay.

The capture jay perched on

the water dish and took one sip (nervousness may have prevented his taking more).

April 11. A bright times. He makes little raspy, muffled chirps occasionally, as he hops about and frequently utters the loud, characteristic "jayce" call. If I sit quietly at the table (15 feet away) he will call thus, and hop about feeding. Sometimes while I sit, he will fly from one end of the cage to the other, taking off from one of the high perches and alighting on the other, then turning and taking off from that one and alighting at the first again. Habit seems to have placed its stamp on this act already for the certain little sidewise hop which he invariably executes at one perch, between alighting and hopping off again, is never executed at the other perch, while the alighting and taking off places, and all the attendant maneuvers are repeated each time with lock like regularity,

thus:



This mechanical reacting was shown by the sparrow hawk in this same cage.

The bird wipes its bill frequently when feeding if the food is sticky, as prunes (dried), or moist (as hamburger). The beak cleaning is done not like that of the sparrow hawk, but more vigorously, first a long swipe on one side of the bill (and perch) and then a similar long swipe on the other side (of both bill and perch. Cyanocittas wipe their bills in the same way.

He not only hides food out on the end of his perch, but also under the edges of his food and water dishes, under flaps of newspaper, and also in a vertical crack near the top of the cage. When wedging food into the latter place (the crack is less than 1/4" wide) he has to cling to the vertical wires of the cage like a woodpecker. This

crack he uses frequently.

March 29, 1933. Took another gulp of water.

April 11, 1933 Put an immature Cyanocitta stelleri scrub into the cage with the Aphelocoma late last night. This morning the Cyanocitta began to discover and steal the various pieces of bread, hamburger, etc. which the other bird had cached. The newcomer was, of course, more nervous in his surroundings than the Aphelocoma, and either for this reason, or because the Aphelocoma was "territory-conscious" (or both), the former would keep at a distance from the latter. The Cyanocitta would remain on his perch, interested but diffident while the other bird hopped about on the floor [illegible] and hiding food, but when the Aphelocoma had finished and flown up to the perch, down would go the Cyanocitta and drag out a hidden morsel and gobble it down. Sometimes he was able to swallow it unobserved, but often the Aphelocoma

would catch sight of him and dash at him instantly. When this happened, the Cyanocitta always hopped, ran, or flew away precipitately. If he had already swallowed the food, nothing further ensued, but sometimes, under such conditions he would drop the morsel if it were large, in which case the Aphelocoma would immediately seize it and hide it again — after which the whole performance would be re-enacted.

April 13. The Aphelocoma has lost much of his recently acquired tameness since the wilder Cyanocitta has been put in with him; force of example is probably a strong factor in the behavior of gregarious birds.

Additional food eaten by the jays is bread (crumbs, slices), bread and milk, lettuce, prunes — but not oranges. A half orange has been in there a week now without being touched at all.

April 18, 1933 - The jays are slightly tamer. E. found a pellet, about this size:

(sagged) in their cage. The sparrowhawk has not been in the pen for two weeks, and the cage has been cleaned since then. Approximately 48 hours ago three mice were put into the cage, and subsequently eaten. Of course it is barely conceivable that the jays found a sparrow hawk pellet somewhere (under the ground of the cage) but this seems highly improbable, all the more so that the pellet, although fragile, was intact when first found.

(pronounced)

April 26, 1933. Today, for the first time, I had occasion to sit for practically the entire day at my table, 8 ft. from the near end of the cage. From 9 A.M. (when I commenced to work there) until noon the two jays flew nervously back and forth from one end of the cage to the other, neither feeding or making any vocal sound. By the afternoon however, their fears had worn off some, and hunger had probably become acute as well. Accordingly they began descending to the floor

frequently, at first with many a timid retreat up to the perches again, but later with more boldness. When not on the floor they would often sit motionless on the perches, at rest instead of in fidgety trepidation.

While on the floor they hopped about picked up grain, bid, or retrieved, morsels from beneath newspapers, and the Calif. Jay sang, or better, warbled. This warbling is impossible to transcribe, but represented a sort of whisper song of very pleasing sweetness and variety. A medley of gutturals and faint warblings it was uttered by the bird with its bill practically closed, and tipped up into the air at an angle about like this: 

The Cyanocitta did not sing.

The ~~bee~~ Calif. Jay drank twice, about 2 sips each time.

The flight of the two birds differs (as seen in this case), being invariable for each, and probably characteristic for the species. That of the Aphelocoma is a rapid, noisy (each beat making a loud thumping

sound) clumsy "flutterflug". Very possibly the flight of the species is not so clumsy under natural, that is less confined, conditions. There was no gliding even at the end of the flight when the bird was about to alight.

The Cyanocitta, on the other hand flew each time with a comparatively noiseless, graceful flight which terminated, at the instant before alighting, in a graceful, level, glide, on out stretched wings. At the instant of alighting, at the time that the bird's feet coming in contact with the wooden perch gave a resonant thump, its wings would close. During flight the crest was ~~held~~ depressed ; upon alighting it was relaxed and stood upright .

April 27, 1933

The Cyanocitta drank; also today it sang in a manner similar to that of the Aphelocoma (was at the table as before). Its song was given quite as frequently as that of the

other bird, and with the bill similarly closed, but the song itself was somewhat more varied, and often contained parts which ~~either~~ were quite characteristic (but impossible to transcribe). When singing, the Cyanocitta often gave a rather clarinet, decidedly musical, although somewhat nasaling note (the notes uttered in couples, and with a rising inflection). Sevenal times also it uttered the Red-tail-like tseeup, tseeup (written cheeop, cheeop under Buteo). When one is within 20 feet or so of the bird, or inside a house one can hear a faint click made by the bird immediately preceding each tseeup (but so close upon it that the two may be written as one: click-tseeup, click-tseeup).

Both jays use their bills about as woodpeckers do when feeding, that is, as picks or pickaxes. This is especially noticeable when they are hammering upon a dry hard

bread crust, or upon a mouse whose skin is resistant to their efforts. As fast as they dislodge fragments from such food the birds swallow them.

May 4, 1933. I discovered today that the water dish of the jays was entirely dry. The Cyanocitta had called this to my attention (of course unknowingly) by pecking at it continually. The birds must have been without water for a considerable time, for they were very thirsty, hopping down to the floor almost immediately I had left their cage. The Aphelocoma, whether from the fact that it had been in the cage longer, or from a superior natural aggressiveness, still kept the other jay from whatever the Aphelocoma coveted, as shown by its behavior with reference to the water. It took 13 sips, the Cyanocitta standing close by but diffident, then flew up to its perch, the Cyanocitta not venturing to drink until the other had left. The Cyanocitta drank eight sips, then one or two more a few minutes

later. Fifteen minutes later the Calif. jay flew down, drove the other away from its perch near the water, and took two more sips, after which the Cyanocitta returned and drank 3 sips also, perhaps in part ~~[illegible]~~ prompted by the instinct to imitate. A few minutes later the same thing happened, and then again a few minutes later the Cyanocitta drinking after the Aphelocoma each time.

Perhaps ten minutes later the Aphelocoma flew down again and attempted to take a bath. Perhaps this was its first bath in the dish; at least it had to try for several minutes before it had worked itself up to the point of actually wading in. At first it merely stood on the edge of the dish and, leaning way over, immersed its head up to about the base of the bill and then withdrew it again, shaking its head violently from side to side and fluttering its wings, the body feathers being all ruffled up, at the moment of

withdrawal. By the violent shaking of the head it got a little water on its neck and breast, but not much. After perhaps two minutes of this it waded right into the water (about 2" deep at the middle of the dish), and took a real bath, dipping and shaking its head and shaking its wings with the body feathers all ruffled up. By this means it got quite wet all over, and at last it flapped heavily and noisily up onto its perch.

The Cyanocitta again perhaps in part prompted by the (gregarious) instinct to imitate, went to the dish and also tried to take a bath, however, although it tried for about fifteen minutes (5 or 6 times as long as the Calif. jay), it never screwed itself up to the point of wading into the dish. As a result, it got only its head wet, although it subsequently flew up to the perch and sat there with its feathers all fluffed out just as though

it had had a bath.

E. heard it give the red-tail-like scream "chree!", today.

I forgot to mention that on April 28 I put two quail eggs into the jays' cage. Both disappeared in a few hours. One was never seen again, and may have been eaten or may have been crushed beneath the nesting-pigeons on the floor of the cage. The other one, however, and a third one put in later, have not been touched to this day. A hen egg remained nearly two weeks in the cage before it was eaten. Evidently these jays do not take naturally to eggs, but seem to have to learn about them — a significant point in the jay-nesting bird relationship. The hen egg probably was at first pecked out of curiosity (or some such idle motive), in the same way that the edge of the water dish is frequently pecked. When the shell cracked and the contents of the egg oozed forth, the jays

undoubtedly knew what to do next.

A half orange remained in the cage, untouched by the birds until it dried and was removed, after about 10 days; likewise a banana.

May 18 - got rid of both jays, since we have too many pets.

May 23, 1933. Trapped one Aphelocoma; wt. 101.0 hour 5:05 P.M.

2. (1 toe nail) 87.0 " 7 P.M.

May 24 - 1933

3 (2 toe nails) 93.1 " 5:15 P.M.

July 3, 1933 - Alp. Ranch. Shot and trapped a number of jays for stomach content analysis (with reference to quail). Report will be made later, when I have time to examine the stomachs. The point now is that many of these jays are immatures which still have the fluffy look and have not long been out of the nest, obviously.

July 7, 1933. Fullerton, the Canesburg man, gave me today a young

jay which was so young that it was unable to fly. Its primaries secondaries and rectrices were not yet fully developed, the cases being enshea~~th~~ed for a half inch and filled with blood and plasma. Perhaps the exceedingly cool summer (see under weather notes) has delayed the nesting season. In this connection see also Topostoma rediuum, p. 20.

June 15, 1934 - Berkeley U.C. Campus, Berkeley, Calif. About 6 P.M. Saw a jay which was feeding on the lawn, launch into the air and flap after a butterfly, Heterochroa californica, which was flying about 5 ft above the lawn and about 20 feet away. The jay rapidly overtook the butterfly, but missed it, turned, overtook it again, and again missed, whereupon the bird descended to the lawn again. About 60 seconds later the butterfly in its erratic cruising came more passed near the jay, whereupon the latter once again left the lawn, pursued the butterfly,

for about 30 feet, missed it again and gave up, the butterfly continuing its cruise unharmed - The jay looked slow and clumsy, if more purposeful, compared with the butterfly.

Aquila chrysaetos

3/15/30. On road just east of top of Pacheco Pass, Santa Clara Co. Calif. Bird flying over road at height of about 100 ft.

9/8/30 22 mi ~~N.W.~~ S. Los Banos, on road to Sweeney Ranch. Bird of yr. flushed from clump of cottonwoods by deserted ranch. Two others seen 1/8 mi up canyon from there, at least one of these being ad. At Sweeney Ranch ~~an~~ used nest observed on a small pile of weathered rock the day before. Nest had partly fallen from rock and many large sticks indicating accumulation of years, on ground below. This might be an aquila nest, but not proved.

9/10/30 Sweeney Ranch, 22 mi S. of L. B. 6:30 A.M. One bird seen. It was first noticed as it swooped down past a hill slope from high up, the rush of air past its wings making a loud swish.

1/31/31 Just north of ~~Chis~~ Pacheco Pass summit, Calif. 1 bird seen circling high in air in late P.M.

2/23/31 East side Los Banos Duck Refuge, Merced Co. Calif. Flying low over land and water. There was a commotion among the ducks as she

flew over one small pond, but he paid no apparent attention. About 3/4 of a mile away he alighted, turning about so as to face the wind just as he lit and leaning a little forward from the natural posture (He had been flying about at rt ∠s to the wind). A moment later he was gone.

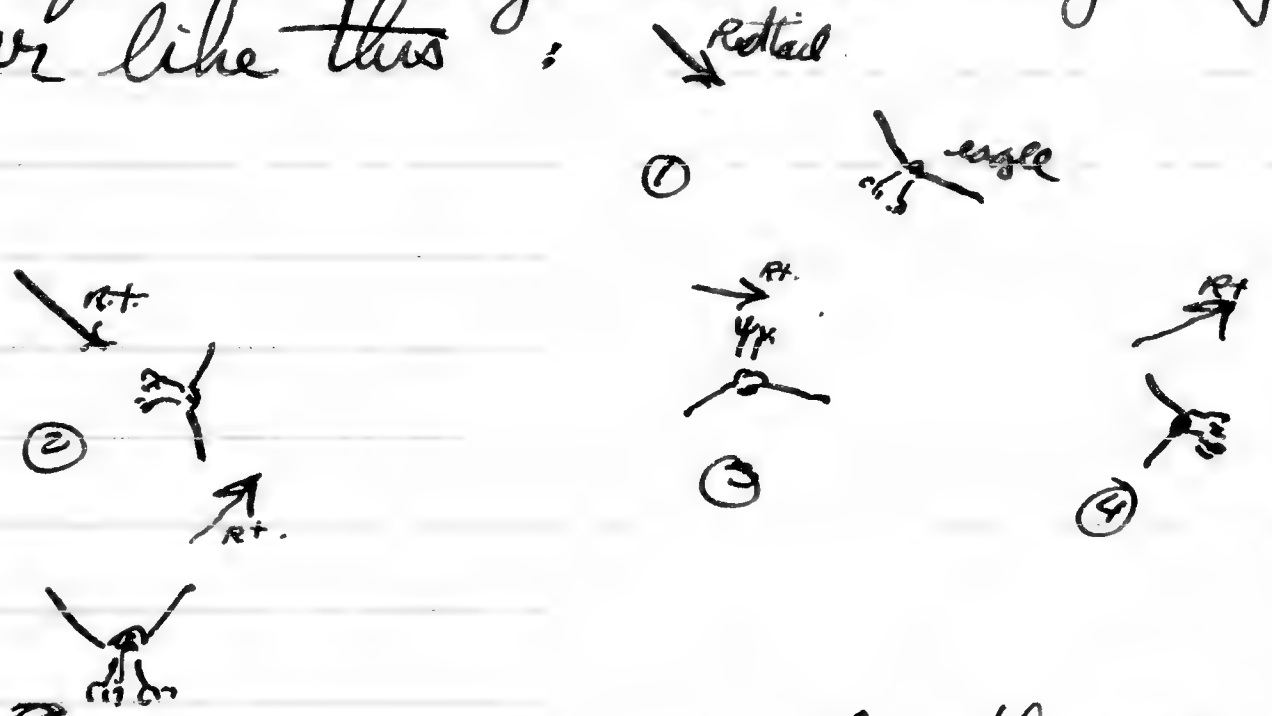
3/15/31 7.8 miles from Pacheco Pass main bridge, on Oakland side. One bird sailing about 150-200 ft above an orchard and farm house — surprisingly close to civilization. This is about 12 miles from the top of the pass.

4/3/31 L.B.D. Refuge. Floodlands s. of Ruth Lake. An immature eagle seen just as he was flapping along 2-3 ft from the ground in pursuit of a horned lark or meadowlark - it was too far away to see which. The small bird dodged in a loop ⊃ with the eagle flapping clumsily, and more slowly after. At the end of the loop it gave up and lit with claws widely spread upon the ground. It stayed there for a moment looking about, then flapped 150 yds farther and lit for a moment again

Then it got up once more and flew along close to the ground, turning a little here and there to one side; in front of it a whole flock of mud hens bran and fluttered pell mell into the water — they had been feeding on the bank as usual. He turned in their direction but by the time he got there they were all in the water, and presently he lit on the ground again. It was interesting that the numerous egrets in the vicinity did not alter their hunting activities, or even refrain from flying about in customary manner. After a few minutes the eagle got up and sailed some more, fairly near the ground; in a few moments a pair of jaeb and chased it flapping rather clumsily, and following the jaeb's twists and doubles with very discernible slowness. Once the jaeb made a U turn and left the eagle 25 yds behind before he was able to turn and fly after him; when he did turn and flap hurriedly after the jaeb the latter had in some manner disappeared — I think

it crouched down under some brush. The eagle lit once more, then got up and sailed about as before turning in his course so that he faced right about and dropping to the ground — as though after a squirrel — but each time he rose empty-footed. Then he continued over toward Mudslough and alighted once more. Here, however, he was within the territory of the red tail nesting S. of main E & W. rd (See under Buteo on previous dates) and the latter, which had been circling in the air, dove at him three times from a height of about 300-400 feet. Each time the red tail dove the eagle jumped up from the ground and flung himself, while in the air, upside down so as to oppose his talons to those of the hawk. By and by the hawk stopped diving and began to circle again, the eagle staying where he was. But when the eagle got up and flew further into the hawk's territory — flying leisurely — the red tail, although 1/4 mile or so from him flapped his wings

faster than I have ever seen a redtail flap, and cuss overhead in less than 30 seconds, - like an airplane overtaking a freight train - and dive at him as before. The eagle turned completely over like this:



This happened twice, then the eagle flew a bit faster, left the hawk territory, spent 10-15 minutes soaring very high over the refuge - with every bird and beast on guard - and then rising higher, sailed straight away south past Los Banos and toward the sun until I could no longer see him even with X12s.

I forgot to mention that a blackbird - far away to see what species - dove at him and chased him after he missed the jack rabbit; he merely dodged a little and flapped one or two times to

avoid it.

4/4/31 L.B.D. Refuge. Same place as yesterday only 2 hours earlier (12 m), eagle seen soaring as yesterday.

4/12/31 L.B.D.R. just N. of Ruth Lake, Parabuteos scared up off ground by me in my Ford before I saw them or had a chance to find out what they were doing. They circled for altitude passing over Ruth Lake and I saw that one was an ad. and the other an ad. ♀. The ad. ♂ had a very ragged appearance due to missing primaries. As they passed over R. Lake a number of avocets sailed after them crying out loudly and repeatedly. The avocets flapped after them and nearly on the same level and did not dive down from above as some birds do, however as the eagles mounted rapidly higher the avocets did the same until they were 200 ft up at least when they gradually returned to the lake and ceased their clamor while the eagles sailed higher and higher and farther away till they were

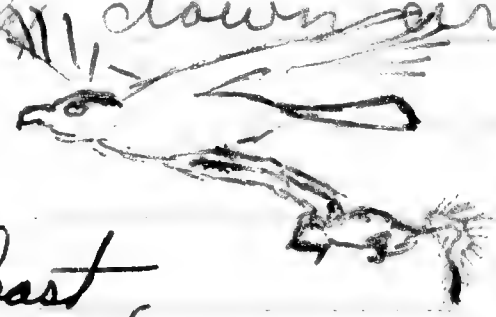
Aquila chrysaetos.

lost to the s.e. of the refuge.

4/28/31 L.B.D.R. 2nd Red tail camp. An immature bird sailing east, very high up, pursued by a red tail; probably same bird observed before (see Aquila ante).

May 4, 1932. Alpine Creek Ranch (Gov. Ralph's Estate), San Mateo Co., Calif. (Byrnal enclosure. See under Buteo l. calurus p 119–121 for description of aerial contest, with mounting of eagle; also p 1201 for a note on plumage.

Aug 14, 1932 Davis (sage brush country of extreme northern California, toward the east), Calif. "In company the familiar scream of a red tail, I discovered an eagle flying rather low (200 ft?), with a ground squirrel in his talons, and followed, at some distance, by the red tail which had given the scream. The eagle flew with fairly rapid wing beats, and seemed (as well as I could tell) to be holding his legs partly down and partly back, thus:



The ground squirrel was still struggling, at least his tail seemed to move, in a

manner apparently not caused by the breeze alone. The red tail was considerably above, and somewhat ~~the~~ behind the eagle, and was sailing along on set wings (mostly) as though ushering the latter out of his territory. Both birds held on a straight course as long as I watched them.

March 30, 1933. Alpine Creek (Ralph) Ranch, San Mateo Co., Calif., top of the divide, about Mayfield Rd. As I drove over the divide an adult eagle soared over me, 100 feet away, paralleling the divide and disappearing over the top of the hill. The douglas firs in the deep canyons which occur all through here should furnish good nesting sites for eagles, while rabbits are plentiful, also.

Nov. 11, 1933. Chas. J. Hayes, Division of Fish and Game Predatory Animal Trapper, San Bernardino, Calif., writes: "On one of the refuges one very seldom get anything that is caught in the pole traps, as there is a big eagle that rolls

the traps. The other day he killed a horned owl and had just started to eat it when we arrived".

Feb. 28, 1934. Donald D. McLean told me of two instances which he observed in which a pair of eagles chased and caught then carried off and doubtless ate red tails. In each case McLean caught sight of the red tail flapping away as fast as it could with two eagles, in pursuit. The red tail was unable to rise above the eagles, which in each case were above him, noted he tried to hurry toward the distant woods, the eagles diving after him one after the other, the red tail dodging each on slang it and screaming his protest.

One eagle the red tails would have been able to elude, but in each case it happened that when the two eagles in their swoops happened by chance to time their swoops so close one upon the other that the red tail was unable to recover from one side-slip in time to make another, then the eagle making

the second of the two swoops caught the red tail. In one of the instances the scene took place near enough to McLean so that he could see the Red tail, when seized, flap and struggle mightily, so that many feathers floated through the air. The eagle (Q in this case), however, bore him off to a distant tree and commenced feeding.

Both incidents took place about December (when McLean says eagles commence to repair their last year's nest.

Sept. 1-Oct 4, 1937 Summer Ranch. See under Citellus, p. 11 for account of eagles and red-tails being forced to leave the country, temporarily, following a squirrel poisoning campaign.

Jan 1, 1936 - Mr. Bill Condrin, old time cow puncher and 15 years a resident on the ranch next to mine, tells me that once while he was standing by his back door he saw a golden eagle drop upon one of his cats which was hunting on the bare hillslope about ~~500~~ 300 yds ~~1000 ft~~ across the gulley to the n.w. The eagle picked the cat up and got

about 6 feet off the ground when the latter turned and fought so savagely with claws (and teeth?) that the eagle was forced to drop it. A second time the eagle swooped, but the panic stricken and infuriated cat leaped up into the air at the bird spitting and snarling, thereby daunting the eagle so that it sailed away instead. The cat then made a bee-line for the house, and Condrin said that it was very severely lacerated and torn by the eagle's claws; however, it recovered.

egret — Ardea egretta

3/15/30 On road between Dos Palos and Firebaugh, Fresno Co., Calif. in extensive plowed field, also at another field 3 mi further. Large numbers standing in fields of bare earth as far as the eye could see (27 at one place counted).

3/17/30 On road above Del Mar, S. Diego Co. several standing in slough off from ocean.

3/19/30 One seen on shore near road just south of bridge crossing Lake Hodges, San Diego Co. Calif. Later — about 5:50 P.M. — Twilight. Birds are resting in three tall dead trees on opposite side of road from road. There are perhaps 20 birds in each tree and they show up very conspicuously from across the lake.

5/28/30 About 3 mi S. of Gustine, Merced Co. near main road. Very large number nesting in rows of ~~po~~ cotton woods and poplars which border the irrigation ditches. Many nests (15 - 25) often in one tree - these nests indiscriminately mixed with Grt. Blue Heron and Black crowned night. Egrets most abundant, Grt. Blue next, Black Cr. Night least. Young egrets in one nest seem to be about 1 ft long;

able to stand up in nest and preen themselves. Pellets seen under tree, also dead young and egg shells. Cheyney's estimate 250 pairs of egrets in a total of two colonies; other colonies in vicinity. There, with grt Blues and Black Cr. Night. out in adjacent alfalfa field in great numbers. Field is being flooded and they are getting gophers. [See Black Crowned Night Heron heading] Pellet of one of the three species noted. Old birds are quite noisy at the nest, making a harsh throaty series of clucks and squawks in "conversational" (= not alarmed or excited) tones. Brewer Black birds nesting in same trees, perhaps in crannies of Egrets' nests.

Although poplars and cotton woods are equally numerous in this row only the more spreading (as comp. to poplars) cotton woods are used for nesting. Hence there are gaps in the colony, caused by presence of poplars in the series of cotton woods. Birds not very active at this time of day (noon). Those on the nest mostly stand still with half spread wings, occasionally preening.

Bird in alfalfa field seen to have a 2/3 grown gopher in its beak (already dead

when seen by me). A nearby egret seeing the prize, chased after the first egret, but the latter rose and flew 100 ft., settling down unmolested. After some effort it swallowed the gopher (see account of Black Cr. - Night Heron same day), a lump showing in its neck.

5/16/30 6 mi S. of Williams on main highway. Egret standing in meadow near road. Country characterized by irrigation ditches choked with tules, occasional willows, extensive grassland (short) Blackbirds present. Other egrets seen later.

4/2/31 Los Banos Duck Refuge, Los Banos, Merced Co. Calif. Egrets have become much more numerous than formerly during the last two weeks. Today I counted 17(!) in one bunch, feeding out on the grassy flats.

4/12/31 No. 320793 band put on an adult which had seemingly broken its wing by hitting a fence wire (no shot holes in wing). It was broken with bones protruding, so I clipped the wing feathers and turned it loose. The bird made no effort to stab at me with its bill except once and even this was a half-hearted effort. Released just south of "2nd Buteo camp".

Photos

Ardea egretta 4.

6/11/31 L.B.D.R. coyote pond. See Egretta c. candidissima for comparison of feeding methods with this, A. herodias, and Egretta c. c itself, also A. herodias 3 for hostility reaction -

Ardea herodias

3/1/30 1 1/2 mi S.E. Pleasanton on road from Dublin to Sunol, in Arroyo de la Laguna. Tall sycamore containing 3 large nests and one smaller one - incomplete. One bird sitting as though, brooding, perfectly quiet. Two standing up in other 2 nests with heads down moving sticks about. Small incomplete (or old) nest empty. Nests very conspicuous from road. Later: All three birds now standing up, one from center nest now standing in top of tree. Very conspicuous.

3/15/30 On road between Dos Palos and Five Points, Fresno Co. Calif. In grove of Eucalyptus on right hand side of road going toward Five Points. Five nests; bird seen on one of them, standing up.

3/17/30 About 3 mi S. Gustine, Merced Co. near main highway. Large number nesting in same grove of poplars and cottonwoods with the egrets (see notes under Egret) young of grt. blue heron seem to be much older than egrets, one nest containing three nearly ready to fly. They stood up very straight with necks stretched up and beaks pointing to zenith, perfectly motionless, facing the observer. Adults feeding with

Egrets in field.

3/1/31 } Los B. D. Refuge, Merced Co. Calif.
3/7/31 } Both times, herons seen standing motionless in water up to their bellies.

3/26/31 Delta Ranch, n. of L. B. D. Refuge along Mud Slough in willows about 7 grt. blues standing in the tops of the trees, some alighting leisurely and others leaving so that the number remained fairly constant. A small platform of sticks could be just barely made out in the trees at that point (we were 150 yds away).

3/9/31 L. B. D. R. by Salmon Slough. McLellan found one in full breeding plumage (I saw it) which had collided with the s. boundary wire fence and broken its wing and then got it wrapped about the wire. The bird had evidently put up quite a fight for it had bled freely. Probably the accident occurred during the great wing storm of day before yesterday — the one that was so bad you couldn't see anything a mile away, trees or buildings from the dust.) The bird had ~~the~~ disgorged the posterior half of a large bass (or else a carp) during its struggles. The piece was about 7" long and 2½ inches wide at the

middle and, interestingly enough, was only a half a fish, indicating that the fish had been cut in two.

6/3/31 McLellan says that he heard an account of a woman in Justine seeing a heron eat some young ducks and on going up to verify this heard her account himself. ~~Also~~ On 5/24/31 a volunteer deputy visiting the Refuge (name forgot) told me of a woman here about having seen such a thing; probably it was the same episode - at any rate its validity seems quite well established.

6/11/31 L.B. & D.R. coyote pond, s. side Refuge - see Egretta c.c. p. 2, 3 for comparison of feeding habits of this, a. egretta, and Egretta c.c. itself. This fowl was on the spot at 3:50 P.M., and watched until 9.07 P.M. when he flew off. It made little runs at an a. egretta whenever the latter came near it, and forced the latter each time to run a few steps out of the way; it did not attack a white pelican or a snowy egret which came just as close. Just as Selous found with his lion, this heron is not primarily a wat waiter in that he is a stationary hunter. On the contrary he spent all his time walking slowly and stealthily up

and down the length of the rather long, narrow pond, or occasionally (4-5 times) getting up with a series of deep raucous croaks and after a preliminary flaps coast to the other end on motionless wings and alighting pause motionless and then begin the stately search all over again. In flying from one end of the pond to the other he kept his neck straight out at full length mostly.

It seemed to be getting very small objects, as insects, and while it did, to be sure, stand still, this was like the "just sitting" of the red tails (a case of no stimulus external or internal, being strong enough to impel them), and when it started to feed it began to move about as indicated above. At 9:07 it flew to a nearby slough and alighted.

When just about to seize a prey they stretch their necks as far upward and forward as possible without moving the body, and "look almost over-joyed when they are trembling on the brink" of a thrust in this manner — the position they hold until the moment

of the strike, when they thrust their breast forward with lightning like rapidity at the same, or following instant stepping forward so as not to lose their balance. Sometimes, if they reach out too far in their thrust they do lose their balance, as I have several times seen — once just now when a heron speared a fish and in his haste, and by reason of the distance of his lunge, he fell forward and had to spread his wings (to support him while he was bringing his feet forward), with the result that they went half underwater with the force of the lunge. (Maybe I am wrong as to the action of the wings, maybe they are not used to maintain equilibrium but to reinforce the lunge.

Asio accipitrinus

1.

Jan 18, 1934. A stomach of one of these owls given me in the flesh by Chas. G. Hayes (trapper on quail refuges for C. F. & G. Comm.), contained feathers of some small passerine bird.

Asio wilsonianus

3/22/30. Strawberry Canyon, Berkeley, Calif.
Owl flushed by Grinnells class from Willow thicket
at bottom of canyon. 4/5/30 (Date of writing).
Bird not present.

Jan 18, 1934. Stomach of one of these owls given
to me with the flesh by Chas. G. Hayes,
C. F. & G. Comm. game refuge trapper,
contained bones and fur of a kangaroo
rat. Taken Nov. 28, 1933, 8 mi. S. of
Perris, Riverside Co., Calif.

Asyndesmus lewisi

2/15/30. 1 mi west of West Butte, Sutter Co. Calif.
Bird seen digging pieces of valley oak acorn out of a crack in a telephone pole standing by bridge. Acorns were found to have been stored in this crack, and one other, to depth of 3". Margins of these cracks chipped away in several places by birds in their efforts to get at acorns which became wedged too deep to reach. Some of these chipped places appeared much older and weathered more, as though made the previous season. Lowest crack about 3 ft long, and 10 ft up, on pole; other crack about 14 ft up. Some of the nuts stored in form of perfect halves, but most were in smaller pieces. Many hulls lying at base of pole. Woodpecker observed to return to pole many times, from neighboring trees, and although not seen actually storing nuts, was seen eating them (mandibles moved). It drove away several Calif. Woodpeckers at various times.

3/16/30. Same place, same woodpecker, same actions. Examination of bank of valley

Asyndesmus lewisi

oaks in vicinity showed in some cases acorns stored in chinks of bark in similar manner.

Lewis wood peckers very abundant here — perhaps 75 in a territory about 300 yds in diameter — while Melanerpes c. bairdi scarce, only 2 or 3 being seen.

5/27/30. About 3 mi S. Gustine, Merced Co. Near highway. Bird observed flapping and then sailing, in small circles about 50 ft above an alfalfa patch. Bird kept this up for some time, making about 5 complete circles, after initial flapping and sailing. Then it came to rest in a nearby poplar. Possibly bird was catching insects, although no visible evidence was seen.

Baeolophus inornatus

4/5/30 Strawberry Canyon, Berkeley, Calif. Bird seen to enter downy woodpecker hole in short stub in oak tree leaning over the road. As I reached the stub, after climbing tree, bird flushed, and uttered an alarm note as it reached the edge of the crown of branches, not before. I spent about 15 minutes moving about in neighboring trees, calling for a moment or two and then remaining silent. ♂ in top of nearby tree uttering his call note.

Dec 26, 1932 See Otrosio, p. 3 (Alpine Creek Ranch, San Mateo Co., Calif.) for account of the mobbing of a screech owl.

Jan. 14, 1932. Alp-Creek Ranch, Calif. I think that plain titmice must roost in holes and crannies, from what I have seen tonight at about 10 A.M. I put a pl. titm. into the cage in which I keep birds to feed the sparrowhawk. Tonight I could find the titmouse nowhere at first, and finally discovered it crouched down, feathers fluffed out, at the bottom of a 6-inch perpendicular hole which a mouse had made in the dirt between an upright 2 x 4 beam and a board. The hole was about

Baeolophus wollmatus

1½ inches wide by 4 inches long, and 6-7" deep into the earth. The titmouse was crouched down in there in the same way that I have seen nesting chickadees crouch down in their nest cavities.

Botaurus lentiginosus /

3/9/31 Los Banos Duck Refuge, Los Banos, Merced Co. Calif. Vicinity of 3 l-towers in tule patches bordering Mud Slough. 3 individuals scared up from tules by Alden Miller.

5/21/31 L.B.D.R by 2nd Butte camp. One seen to fly up from a slough and alight in some rush grass 1/4 mi away — all voluntarily — this A.M. This is the first one I have seen myself.

Brenta group

2/23/31 Los Banos Duck Refuge, Los Banos Merced Co. Calif. Second of 3 species (Chen, Canner, Brenta) in point of abundance, but not 1/10th as abundant as Chen. No actual census taken, but only small scattered flocks of 15-20 seen as compared with flock of about 4000 Chen.

2/28/31 Same place; same situation. During 1½ hrs. observation gave from tower only ½ dozen scattered flocks of 10-20 Brenta seen, mostly flying by. They do not seem to consort much with the Chen.

3/2/31 Brenta numbering about 200, mostly in small scattered groups, observed mixed in with the great flock of Chen. When the Chen rise up and circle about, or trail away into the distance upon being frightened the Brenta tend to take their own line of flight and move off independently.

3/27/31 L. B. D. Refuge. Present in about the same numbers as on 3/2/31, or possibly some slight decrease.

4/12/31 L. B. D. Refuge. Disappeared about the time of the Chen or a few days before;

haven't seen one since.

5/6/31 ~~Seven~~ Nine of these in company with 3 Chen on Button mellows. All of them left at my approach except two of the honkers. These two are very small, hardly twice the size of mallards (which were within a few feet of them for comparison). Great least Scan-see is being typed, the other is larger, I find perhaps 20% larger.

Later: I made a dash in my Ford after the two Branta, for they had gone out on shore on the opposite side of the lake from where I had been. The larger one flew away very low, and laboring but the smaller one was found to be wing tipped and he was soon caught. I let him go again shortly after this and his escape reaction (being crippled) were as follows: He ran for the first ten feet from me straight upright and as fast as he could go, then he lowered his body and thrust his head forward parallel to the ground

and crept forward very fast but now taking advantage of every little dip.

mission and it was amazing how he could completely disappear at 30 ft in grass which was only 6-8" high. I walked up to him at this point; at first he stopped his stealthy creeping and crouched down carefully flat to the ground but as I came within six feet his fears got the better of his concealment reaction and abandoning all ruse he waddled away upright. As I again came near he paused bent slightly as a preparatory movement and then with a spring into the air made a mighty effort to fly — in vain. He then waddled away at top speed (?!) with hanks of alarm. I let him go and noted that when he got to a rush patch about 35 ft away the old concealment-creeping routine again asserted itself and he vanished as soon as he got among those rushes.

5/8/31 Button Mellows. The drip is back with its mate at the Button Mellows again! Also the 3 @ hen are with it. Later: That was not the drip, for all 5

Branta group 4

took wing at my closer approach. They flew sluggishly and low, evenly one, but I could see no signs of actual lameness. (See also under Anser page 2). Six more seen shortly after.

Bubo virginianus pacificus

2/16/30 Marysville Buttes, west end, Sutter Co. Calif.

5:45 A.M. Full moon - very calm, warm, and quiet. Two pairs heard hooting simultaneously among rocks on steep sides of buttes (rugged lava formation with many cliffs). Terrain barren of trees and very dry; strewn with rocks (lava). Two birds in one section, distinguishable by difference in pitch of voice, and 2 others about 1/8 mi down the canyon hooting in same manner, and at same time. Heard pairs calling till 6:15 A.M., when sun was rising over Sierras.

3/18/30 Jamul Ranch, San Diego Co. Calif.

Pair of owls spending day in old lime furnace, deserted for many year. (Furnace about 90 ft high, with many ovens, shelves, etc). ♂ flushed from one opening; ♀ flushed from projecting shelf where nest was located. Nest contained 1 ♂ Valley Quail, 2 pocket gophers, 2 kangaroo rats. Youngsters about 3-4 days old; eyes were slits, not open of their own accord.

3/15/30 On road through Pacheco Pass about 2½ - 3 miles east of top, and about

1/3 mile to right of road in long line of sycamores following water course. Two Buteo b. calurus nests. Cheyney says that last year one of these was occupied by a Horned Owl. No evidence this time, as seen from road with binoculars.

5/28/30. Los Banos Game Refuge (Information from Cheney). See locations of nests by referring to 2 Redtail nests of same date same place under Buteo. The owls nested in adjacent nests according to Cheney. In the one at Mud Slough near main bridge one of the 3 young got caught by one foot, suspended from nest, and died.

7/22/30 L Banos Game Ref. Bird flushed from willows along Mud Slough.

2/21/31 Near 3 legged tower 8:45 P.M. (Dark for 2 hrs) one heard hooting not far away

2/23/31 L. B. G. Ref. N. W. of three legged tower. Both birds of the Refuge pair heard hooting intermittently throughout the night. In the A.M. I flushed both from one willow on Mud Slough where it crosses west Refuge boundary temporarily. Apparently they are not nesting yet. Their last year nest tree

Bubo v. pacificus 3

seems to be occupied by the Refuge pair of Redtails (See Buteo section)

Same Date — Mud Slough 3/5 mi S. of 3 legged tower — Old Red tails (?) nest 20 ft up in willows. Brooding Bubo sitting very close. Would not flush even when we flapped a cloth and took pictures from the roof of the car (4 photos) 30 ft away. She flushed only when we actually struck the tree. Nest not examined. Observed 2 pairs it seems on Mud Slough near the tower.

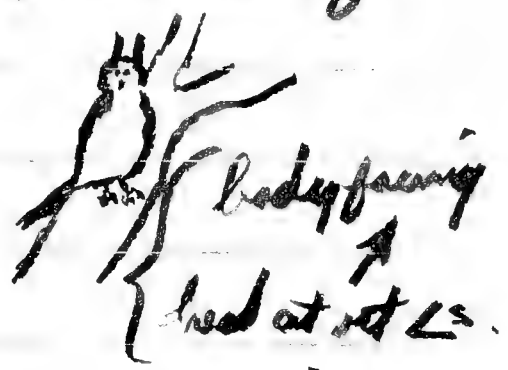
2/24/31 H. Owls heard hooting as usual last night.

2/28/31 Pair n. of main e. and w. road. Heard hooting most of last night. Both birds flushed 11 P.M. today near together — but no nest as yet. Funny.

3/1/31 Same pair heard last night. I saw (not flushed) in willows where seen yesterday at 11 P.M., only this time it was 8:30 A.M.

Bubos are like screech owls in that when undisturbed their feathers lie flat, their ears stick up higher (by comparison) and they look slimmer and less bird like. This

one was roosting on a slanting limb of a dense willow over water



and often had sat still for a half hr. last fear of me and lost its original puffed out appearance.

3/14/31 L.B.D. Refuge - nest south of m. e+w. rd. on mud slough 5:15 P.M. (bright sun). Bird flushed from 3 eggs when I shook the tree. She flew to a willow along the same slough, about 1/50 of a mile away and perched in the open on a bare branch, facing me. I left and hid in some willows 1/4 mi away. In about 6 minutes she left her post, flew to a willow nearer the nest tree, stayed there about two minutes, and then flew to the nest tree. She lit directly on the nest, walked to the center, fluffed her feathers and sat down facing my hiding place.

3/26/31 Kaufmann Ranch n. of L.B.D. Refuge, along mud slough. Brooding female, nest not examined for eggs, in a

willow not far from the Buteo nest mentioned on page — (the ninth of March. I believe this is one of the horned owls north of the main c. and west road, on Mud Slough, mentioned at top of page 4, whose nest I could not find previously; it is only 1/4 mile from where I used to see the ~~[illegible]~~ birds. The mate was flushed from a nearby willow.

Two other occupied horned owls nests were found within a mile of this one, on Mud Slough, on Kaufmann's Ranch and the Delta Ranch. The last one found was in a dense willow stand (an uncommon formation here) in what looked to be a red tails' nest. This nest was well built up deeply cupped (3") and lined with small twigs and dried grasses! I think that a red tail may have built this nest up and then been molested after by the owls — otherwise one must assume a considerable and skillful architectural ability for these owls. It happened that 100 yds away there is an occupied red tails nest (

(see Buteo p. 9, 3/26/31), and this red tail may have constructed the other nest. There were 2 eggs in the owl nest.

3/29/31 L.B.D.R. Nest 4, of E. & W. Rd. When I climbed this today there were two infertile eggs and one young owl about 10 days old. He greeted me with the usual feeble bill clapping when I first picked him up, but made no more noise after the first moment. When put down on the ground in an afternoon sun (3:1 P.M.) he panted even though the wind was blowing. In the nest was the following: ① Greenwinged teal ♂
② " " " ♀
both headless, and one with thoracic cavity stripped of lungs, heart, windpipe etc
③. Hind legs of a young rabbit
④ Another young rabbit all but the head
⑤ Another full- or nearly full grown rabbit all but the head.

Photo of young with nest contents

4/3/31 Same limit as above. She has not been prevented from staying with her

young one even though I had left a large loose piece of canvass curled up so that one end was opposite the nest and it could flap some in the wind. The following birds and animals were in the nest:

1. ~~front and~~ hind quarters of a cottontail rabbit
2. a young jackrabbit not more than a week old, I should judge
3. a baby killdeer, about 10 days old
4. a young shrike recently out of the nest

but the two addled eggs were no longer there, although there were some shell fragments present. The nest is already somewhat delapidated in that the edges have trampled down and the bottom of the cup like mine. The excrement of the youngster is smeared about to some extent also. We cut a section out of the tree and lowered the nest about 6 feet, so as to be more accessible; it had to be bolted into place and wired up for although it had not fallen out of the crotch in which it was placed when the crotch was inverted it had loosened up. This work took us until 6:30 or about 20 minutes after sundown and during

Bubo v. pacificus

the last 20 minutes the hoots of the ♀ and commenced and became louder, more insistant, and nearer, although we did not actually see her. The youngster is not much further developed than last time.

4/4/31 Some Bubo. She flushed off the nest as we came up, showing that the change had not upset her activities very much. Two minutes later in walking down the Slough I flushed her again, with her mate, out of another tree. One of the two at least went out onto the flats 100 yds and sit in the sun. Youngster much as before except that he speedily hissed, without clapping his beak, during our operations. There was the hind quarters of another baby cottontail in the nest. We put up a canvas cath - all immediately beneath the nest on a square wooden frame, the operation taking 3 1/2 hrs.

photo of yesterday's nest contents

4/5/31 [Another horned owl on mud slough on Kaufmann's property - not discovered when with Cheney. See about 10 days earlier.

Bubo v. pacificus.

Owl did not flush until I was half-way up the tree. Two eggs seemingly fresh with few small blood stains. Willow is of great age, the main stump nearly rotted away and hollowed with fire yet with one living branch 20 inches in diameter. Trunk at base of main stub 5 ft. in diameter.

"Tree of many nests" (See under Buteo for this date) Two young birds about 10 days old — younger than single young one on Refuge — given bands-number:

~~[illegible]~~ 320790
and
320791

Number 320790 has oil gland removed. Contents of nest are: hindquarter of one baby rabbit and hind leg of one fullgrown rabbit.

Nest beside red-tails nest with 4 eggs in it — two young about 4 and 5 days old.

Buteo v. pacificus

The larger one has oil gland removed. Hindquarters of two baby rabbits in nest]

Nest on ridge with canvass beneath: Old bird flushed as usual. youngsters wet me with clapping bill & inverted wings but could be handled with safety. Nest contained hind quarters of 2 cottontails - one nearly grown, the other about 3/5 grown, and the hind quarters of a 2/3 grown gopher.

4/11/31 Nest with canvass inside. Flushed as usual. Young one is about 1/4 grown, with min. plumage feathering out all over leaving on its tips the downs. The bird is more vicious, snapping with its bill and swaying with inverted wing. The hind quarters of a young jackrabbit only 1/4 grown in the nest, also posterior portions of two mud hens and anterior portion of gopher

4/12/31 N. with canvass. Youngster given band no. 320797. Nest contents - nothing but a few feathers and a fragment of ilium-sacrum-etc of the cat of yesterday. The piece of gopher from yesterday

2 photos 1 altitude photo of parent on nest.

Bubo v. pacificus

there only because it had fallen out of the nest into the canvas; and naturally everything of the previous day is cleaned up. One full grown rabbit all but head and neck, present and one large pellet (saved). It had flushed as usual at my approach. J. S. Hunter & McLellan ~~about~~ on 4/10/31 found a horned owl pellet " lying in the road which had " the whole foot of a rabbit in it.

4/13/31 [Bubos outside of Refuge. No. 1 - by 4-egg Buteo nest - It quite bold, remaining in a tree about 70 ft away and ruk-ruk-ing loudly and frequently, with an occasional hoot as well, all the time I was in the tree. The clumsiness of this yellow chunk explained. Youngsters banded 320794, 320795. No. 320794 is the one whose oil gland I had cut last time. It had healed perfectly although with not so long a duct as normally, for I had apparently cut it off near the end - also it naturally grows out from the basal end. This time I cut it off

short, doing a rough job with pliers and pocket knife. But the owl did not seem to be in much pain; only once when I was squeezing the gland - already bloody and cut - with pliers did it hiss and swear, and when I put it back into the nest it behaved just like the other birds i.e. did nothing at all but close its eyes and lie down. No change of bill or claws discernible yet, but of course at this age the gland would be little if any functional.

(2) Next which had two eggs in it last time: Bird seen nowhere and eggs each with a hole on top side as large as the small end of a thimble. The eggs were fresh when this was done so must have been soon after our last visit, & whatever did it (crows?) left about 1/3 of the contents in each egg untouched. Remains of a rodent - shoulders on back.

(3) Next in "tree of many nests". Young about same size as young of Refuge Bubo. The one with the injured oil gland as a perfectly normal appearance

otherwise. The wound had healed leaving a shriveled bone and what seemed like the duct adhering by a piece of flesh secondarily:

This tip was malformed but I snipped it off to be safe. Nest contents 1 whole gopher; the hind quarters of a ground-squirrel. ♀ Owl was flushed from nest; in dense growth near base of tree. [Feathers are limits pretty, nipped sorrety, English sparrows underneath in their night roost. ♀ owl flushed and perched in a tree, when the hingbirds reinforced, and the owl was actually attacked by the former. The last I saw of the owl — when she took flight under the attacks of the hingbirds as they clapped their bills with each dive — was when she was flying straight away with the two hingbirds in hot pursuit and one of them about to alight on her back.]

Refuge Bubo. ♀ flushed as usual; youngsters more hostile than heretofore. Nest contents Nearly eaten head of a 2/3 grown jack plus its body from shoulders back (total of 2 pieces), a full grown cottontail from behind shoulders on back, and 1 full grown gopher which had fallen out of the nest into the canvas.

4/20/31 Refuge Bubo. ♀ flushed from nest when I was close this time. When I arrived at the nest the youngster backed up with snapping beak so hard and fast that he tumbled from the nest, bounced off the wooden rim of the canvas platform beneath, struck a branch below, rebounded from there to another branch, and landed with a splash in Mud Slough. For five or six whole minutes he crouched half submerged, in the water, looking about from side to side but not attempting to swim while the big bird which always stays in the tree next to this vociferated, snapped his bill, and dived twice at the young owl; he did not come very near, however (although he had chased the ♀ 75 yds when she left), nor did the young one offer any defense. Beyond by the young owl began to shiver, making little ripples by his quaking, and after a minute or so of this end with a couple of preliminary glances behind at the willow grove.

while he had fallen (he was facing ~~toward~~ open water) he turned, and using his wings (couldn't see his feet) struck out strongly, using the left one more than the right because he was making a right turn, and headed for a stranded branch which was lying just above water level. When he reached it he tried to grasp it with his claws and scramble up but it was 5" thick, with only the under side in water, and he could only make it with one claw, so he hooked his beak over the edge and hung there, shivering, with every now and then another attempt for 10 minutes or so. During this time the ♀ came back while I was still there and perched in the next tree to the great disapproval of the longhunt but it hastily left when I stepped away from its tree. Several minutes later the young owl by frantic efforts at last clambered up upon the log and stood there - very wet beneath, and very quiet. I got tired of waiting for the old to

Point beak over and then

come a second time and left. There was a mud hen minus head and neck in the nest, but no whole pellets even yet.

4/21/31 Same. No food in nest, only many mudhen feathers. ♀ flushed as usual. Youngster went off the nest onto the canvas platform front wards this time and then, standing on the edge looked, hesitated, and deliberately jumped down with flapping wings into the water and immediately oared across to the opposite shore. It tried to grab me with its talons all the time while I held it. Returned one more to nest.

4/27/31 Bubo in "tree of many nests." Old bird (presumably ♀) flushed from another part of the tree, near the top and flew away accompanied by a single bird. There was only one young in the nest — the one with extirpated oil gland — and it jumped out of the nest and sailed downward with flapping wings into a tangle of willow growth 30 ft below. The nest was much tipped on one side as well as being

trampled flat, so that it is easy to explain the absence of the other bird-droppings somewhere in the vicinity. The bird with ext. oil gland was apparently quite healthy, with normal beak and feet (a faint traces of scaling horny tissue just behind cutting edge of upper mandible and on sides of one or two claws), and normal plumage — the down largely adherent as yet. The oil gl. was represented by a lump beneath the skin about the size of a pea, with no duct, as compared to the 3/4" or more oil gland normally present at this age; it is evidently not functional. I threw the youngster into the slough near by but he seemed not in the least discomposed, and immediately (after a slight pause upon landing in the H_2O, that is) swam to shore, using legs more than wings — perhaps because he might have been able to touch bottom. I left him there. On the nest was a very large pellet 3" x 3/4" which was

so met that it must have been ejected within the last ten minutes. This was saved.

4/25/31 Refuge Bubos. Old bird flushed from nest; young jumped into the water when I was still 10 ft from the tree and floated for at least 5 minutes down the stream without moving a muscle except to turn its head and stare at me. (photo in notes). The nest contained the head and shoulders of a large gopher and one pellet (saved). Bird left still standing in the water, apparently little perturbed.

photo

5/20/31 8 a.m. Refuge Bubos. As I drove near that vicinity three owls left a certain clump of trees about 200 yds. south of the nest tree. I take it they are the two parents and young, thus showing that the family keeps together some time after leaving the nest.

5/21/31 Refuge Bubos. 8 a.m. They were roosting in the same place as yesterday. The adults flew when I was still 100 yds

away, but the young one did not flew until a minute or more later, and when it alighted — in a tree 300 yds away — it did so in the full sunlight, staring about as though bewildered. A pellet — old — was picked up beneath one of the trees; bones of small mammals were visible; saved.

5/22/31 Same place as yesterday; same behavior of all 3. It will be interesting to see how long they continue to roost there since I have made it part of my trap line.

5/23/31 Roosting as previously but only 2 seen this time (don't know which 2).

It may be significant that this is the one area along Mud Slough where there are no chucks and only a few muskrats.

5/24/31 One adult and the young one flushed today

5/31/31. Young bird & one old one in roosting clump of trees as usual; other parent in tree about 100 ft. away

6/1/31 8.B.A.P. 6:45 P.M. Sunlight nearly gone; sun itself behind rim. As I approached the roost clump of trees one bird flew

out, and shortly afterward another left from a nearby tree. I note they are using the tractor now about 200 ft from the clump and am surprised that the birds are still there.

6/2/31 Tractor seems to be only about 150 ft from roosting trees at one time (11A.m.).

3:55 p.m. Only one owl there today – an adult I think; it flushed less readily than usual – at 50 ft – must have got used to proximity of men.

6/3/31 A bird scared out of the willows in vicinity of the "rabbit tree" along Mud Slough, just as regularly happened earlier – can it really be that a pair has had its nest in that vicinity which I never was able to locate ???

For account of attempted attack on this and by the Buteos of the vicinity see Buteo 87 (+88 for another more successful one). It may be significant that Mud Slough north of the bridge, in the "Rabbit tree" area, is in the same condition as the area s. of the bridge where the "Refuge pair" lives i.e. no birds of such persuasion or mudhens although food conditions appear suitable –

Refuge pair – 2:55 p.m. No birds

Bubo v. pacificus

at the most this time; must have got wind being scared out daily. Too bad, for this is the clearest & hardest chirp of mellows in the immediate vicinity.

6/6/31 L.B.D.R. Same place as above. About 6:45 – sun behind mts.; early twilight. Two of them left the roosting chirp as I approached.

6/7/31 Same situation as yesterday only a little earlier (6:15).

6/8/31 Same as yesterday only 10:15 A.M.

* * * * * * * * * * * * * * *

8/5/31 McCales' Cabin, Indian Point Lake (7 mi from Barberville British Columbia)

Two gangsters and at least one of the parents are living in this vicinity. About two nights ago I was awakened at 3 ye sis quoi time of a moonlight night by an unearthly ranging chirp, which repeated. The sound had some what the nervous screaming sound of the Barnards scream but was not nearly so harsh or loud and differed too in that there was a whizzy undertone to it. It was given a [illegible] of a minute or sometimes

more and was answered by another, at next
note. I could not tell which bird did the calling
perhaps they both did. At all events they kept
moving about restlessly so that their calls were
now near at hand and now far off. One
or twice I heard one bird alight with a soft
thud and a light whirring scratching on the metal
chimney and one and one

when I came to the window I saw one of
them perched on a projecting ridge pole four feet overhead —
in this case the bird looked at me over his
shoulder, tossed his head and swayed it in
characteristic owl fashion, and then fled.

Tonight the young were calling
again — again at 8 ne s. gu. hour, moonlight
and this time one of the adults must
have been present for there was an
intent mutant but powerful hooting of the
owl sort. Also — in addition — there was

Bubo v. pacificus supp:

that curious nasal "whyee" sound given at intervals, such as I have heard at the nest near Pomona (see my old notes), but never since. Only the sound is not really like "whyee". The McCabes say that it is common belief in this region that the owl is the maker of this call.

The two young, by the way, came out at dusk - while it was still light - this evening. They seem to be about nearly every evening. McCabes say that many hood, including adults, come season to season, but each new year brings another family of them - strangely enough. McCabe says that the Franklin's grouse suffers tremendously from their ravages in this country.

8/6/31 On road to Barkerville from Bear Lake, British Columbia. About 6 p.m. cloudy p.m. (not dusk yet). Two more of

Bubo virginianus subsp.?

These owls seen flying from each tree in the vicinity of the narrow forest road as we drove through. One was very tame and continued to sit and stare at us from over its shoulder while we sat in the car about 75 ft away. Such tameness, as well as the early diurnal activity in company with another individual, indicates that this bird, too, is a bird of the year.

* * * * * * * * * * * * * * * * * * *

8/23/31 Alpine Creek (Ralph) Ranch, San Mateo Co. Calif. By boat house at (dried up) "lake". Heard at least two, possibly three of these bird during much of the time last night. Yes, I remember, there were two owls — at about equal distances from me — going who, who-who, who, who, who, who, and then, just about

indicates duration

two times, on one occasion I heard an owl, seemingly a third, ~~in~~ ~~on~~ boat in a

much higher key. The first two hooted in the same key and with the same rythm, indeed I only knew there were two because they sometimes overlapped.

9/2/31 Alpine Creek Ranch by water tanks near orchard. Two owls heard at intervals; don't know if they were the same as the preceding, but from the distance and direction I think not (awful sleepy).

9/10/31 Alp. Cr. Ranch. Boathouse by "lake". Two horned owls hooting intermittently, both in low tones but the one on slightly lower pitch than the other; I cannot be sure whether they are a pair or of the same sex. Once I heard a sound like the "whyee" sound, only it sounded more like "uh?" (given with rising inflection); this was only once, however.

9/21/31 Alp. Cr. R. See under Lophortyx, this date, for indifference (?) of owl to quail going to roost. (Doesn't really prove anything, however). This same evening, while sleeping in the corn field, I heard two owls (including

the above mentioned individual without a doubt) hooting near at hand, — also, twice, an exceedingly faint and far distant third, somewhere away off across the canyon, on another ridge. The two birds near by must have been mated (by marriage, guess, or else perhaps by parent — child connections, but I think not), for they hooted together, and in answer to one another, almost every time out of the fifty to 100 times that I listened attentively. There were two distinct pitches (= sexes, we suppose), and the deeper toned always invariably started the duet. At regular intervals it (she?) spent who, who-who-h, whooo, whooo (the underlining indicates relative duration of each syllable; the h was a barely audible third syllable in under tone), whereupon the second bird would either hoot immediately after wards, or else commence before the other one was more than half through, in a higher pitch, and with a

"who-oo, who-who-who, who-ee?, who-ee?" run together This "who-ee?" note was very much like the "whyee?" note commented on previously. It varied from a nearly pure "who?" to a distinctly nasal "whyee?", and thus represented all transitory stages from the one type of call to the other - something I had never heard before. Note however, that it was given by the bird with the higher pitch, there being, presumably, not the ♀. Perhaps it was a young bird learning to hoot - je ne sais pas.

The owls must spend hours "just sitting" and hooting, for I have noted, to night and many other times as well that the sound will come from the same location, and with a nearly unvaried rhythm for an hour or more on end. During the mid night hours last night I did not hear the birds although awake a good deal, but they hooted again, more or less

inter mittantly, again at dawn.

9/26/31 Alp. Cr. R. campfield - Only 5:20 - sun hardly behind the hills, and still daylight - heard one bird hooting several times even this early.

9/28/31 [illegible]

9/30/31 Alp. Cr. - Ranch - Old cow barn (where water supply is gone). 5:58 P.M. Late afternoon sun practically gone; not quite dusk. An owl flushed from (on top?) the barn as I drove up. The owls certainly come out early at this season. A few minutes later I heard inter mittant hooting from down the canyon - hooting in a very high pitch, as a 8.

10/1/31 A. C. R. by old cow barn. Heard owls both in first part of night (9-12) and then again from about 4:30 - 5. There were at least three owls present, maybe more. Most of the time I heard but one

owl, which gave a deep-toned, measured who-who-who-who-who-who, but several times I heard another one uttering the same note, on almost the same pitch, and apparently not far away from the first. If the supposition that low-toned hoots are given by the ♀ (or ~~even~~ by either sex generally) then what are the relationships of these two owls? Are they part-birds of the year, already proficient in hooting (but see below as a possible indication of the contrary)? Then, three or four times, I heard another high-pitched, hooting like a ♂, and this also, was near the first, deep-toned hooter. Then, in addition, about 11 P.M., for a space of perhaps 20 minutes, I heard another cry, given intermittently. At first it was like nothing I had ever heard before - a high pitched "wow", sounding a little, but like the "will" of the screech cry, from a distance. Presently it came nearer - down the hill toward me - and then I could distinguish a slight nasal quality,

Bubo v. pacificus

and it sound more like "whyee?"; then just toward the end, it became unmistakable — the "whyee" sound again.

I'll only are thing am I pretty certain — that the owls by the cornfield and the owls by the cow barn constitute two distinct groups — the distance is about 1/2 mi. between. The owls heard at the boat house must be the same as those heard by the cow barn, however.

10/24/31 Alp. Cr. Ranch - Los Trancos Canyon. 4:15 P.M. Still sunlight, although late afternoon light. One of this birds heard hooting intermittently for 3/4 hr. or more, by which time it was dusk.

8:40 P.M. Nearly full moon. Such a noise I never did hear what with coyotes and horned owls calls at it incessantly. Sounds as if one of the horned owls in the Los Trancos Canyon is epileptic. First I heard a "chree," "chreee?" call, given seven or eight times, just like the Indian paint Lake bird. The

bird giving the call seemed to be flying as it gave it, for the sound constantly and evenly, shifted its location. Then, thirty seconds later there was a "ruk" note, very loud, and just like the noise made by the bird on the Kaufmann Ranch by the Bubo-with-4-eggs nest, Los Banos, this last spring (see earlier notes). Then there was a series of excited-sounding hoots, all run together — hoo — hoo-hoo, hoo-hoo hoo-hoo, or something similar — not measured as in groups of fours at all. Then there were some more "ruk" notes, then hooting, and then some notes variously intermediate between "ruk" and "chree", some of them sounding like "whyee?", but others not. After a while (10 min) both owl and coyote ceased, except for an occasional faint and no longer seemingly excited from the owl quite

~~get 2 doz. quart jars + formalin~~
~~and labels.~~

~~make list of things to find out about quail~~
~~with help of Stoddard's book and others~~

~~consider collecting guns for quail and ask~~
~~about feasibility of stomach examination~~
~~at Wash. D. C.~~

~~write post~~

~~Lee~~

I had hardly got these words written when I heard the same outcrees again, for a short time.

10/31/31 Alp. Cr. R. by Cumbhouse. Heard three at one time again, also the "chree" note, twice.

A ray of light. I have just remembered that the "K. K. bird" (or it might have been the first Bubo raised) which I raised in the lab. at Pomona College (see article) made this "chree" noise on several occasions. The noise as made by the "K. K. bird" did not have the volume as the same note heard since then in the woods by me but in other respects it was the same. As I remember it was uttered by the K. K. bird occasionally when I offered it some food and it happened to be very hungry; also I think it made the noise that time in the hall outside the lab.

when I had a young barn owl out on the floor of the hall and the K.K. bird was very excited and curious over it (look this up in original notebook).

Later — Yes; that's right — see pages 120 for hunger cry and 122 for same note uttered when bird was excited by the barn owls. I wrote it "creek" at that time, which is perhaps better than "chree", since I heard it at a distance of only about 2 ft. on those occasions

Dec. 14, 1931 Alg. Cr. Ranch, bunk house. Heard two horned owls hooting, as usual. There were no wahgee notes, just the hooting. It lasted from about 4 A.M., when I woke up, until perhaps 5 or 5:30

Dec 16, 1931 Alg. Cr. R., bunk house. This morning I lay awake from perhaps 4 A.M. until 6, for a guess. When I first awoke there was no hooting but later there was. As a result of a multitude of inconclusive but mutually contributory experiences I am coming to believe that these owls are for the most part silent during the

Bubo v. pacificus

middle part of the night, their hooting being largely confined to an early evening serenade and then again in the hours immediately preceding daylight.

Dec 31/1931 and Jan 1, 1932

Jan 4, 1932 By boat house – heard one of these owls before dawn yesterday again; it was about 5 P.M. and the sky above the mountains was still orange although, since this is an eastward facing slope which we are on, its direct rays had long since disappeared. This owl is the same (undoubtedly) as the one which I hear from the

bunk house.

Jan 5, 1932 Also G. R. Quail enclosure. About 11 A.M. I happened to throw a post beneath the live oak tree which borders the lowermost side of the enclosure, so that it rustled and shook the lowermost branches of the oak. Straight way I heard a rustling and a beating of wings in the top of the next tree over, and through the thick branches could just make out a large bird beating and flapping in the top of the tree, either to keep its balance or because it was tangled up momentarily (like the Nycticorax last time). The bird flew away the next moment before I could get a clear view, but I am sure it was one of the horned owls that I hear hooting (and saw to the evening I first watched the Lophortyx going to roost). We had been working near and also beneath these trees all morning, Bill J. and I, without scaring the bird away until now.

Last night I heard the owls hooting early and then again late (6:58 P.M.) but not during the early

morning hours (5:30-6:30), or late in the premature evening. This helps confirm my growing idea that if you hear a horned owl hooting you may be pretty sure that it is no later in the evening than 11:30 or no earlier in the morning than 4:30, at least in this locality. At 6:58 there was a very dim gray dawn, all objects being indistinct and shadowy except those closest at hand; it was about this same time of dusk last night — about 5:45 — that I heard the first hootings; in other words the light was about the same degree of intensity.

Jan 23, 1932. I heard three horned owls last night from the bunk house; two nearby, as from a pair, and then one farther off and fainter. The one which made the most noise and made it the most frequently was a deep toned hoot [— ! — ! — ! —]; the supposed mate, also nearby, answered in a higher key. Question — if the ♀ makes the lower note than it must be the most aggressive or at least the most vociferous,

in territorial defense (assuming that the hooting is for that purpose, as Laye Miller and others do). If this is true then we have a reversal of the usual roles. I wonder which sex really is responsible for the commonly heard deep toned hooting — as against the more rarely heard, higher pitched hoot.

February 17, 1932. Also C. & R. Lyman. Inclosure. I heard two (?) (or at least one for sure) horned owls hooting at 4:10 P.M. when the hill side was still bathed in the mellow glow of the afternoon sun. This is the earliest I have ever heard horned owls hoot except for the one time at Modjeska's Home (near Orange County Park I think), Southern California, where I heard two of these owls during the early afternoon of a sunny day; the owls were in a narrow, wooded, and rather dark canyon hollow, which did not afford the same light conditions as the surrounding country; Chas. Broadbent was along. In the case of the Alpine Creek Ranch birds

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owls in
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there was less shade, if any (I could not make out the exact locality from which the sounds issued). It does not get dark at the Alp. Cr. R. until about 6 P.M. and the sun doesn't even go behind the ridge until about 4:30 or 4:35. The owls hooted perhaps a dozen times or more; I didn't pay much attention

Feb. 27, 1932 Alp. Cr. Ranch; my usual welcome (designated hereafter as G.I.); time 5 P.M. Two horned owls - evidently a pair judging from the difference in size and their close proximity to each other - began at this rate; the canyon itself was in shade, but the tops of the trees even on the west side of the canyon were still in bright sunlight, while the east side of the canyon was in its full glare. Because the days are getting longer this hour (5 P.M.) corresponds to the hour mentioned under the date preceding this. It does not get dark now until about 6:30 P.M.

March 8, 1932. Alp. Cr. Ranch, by bunk house. Last night was ~~a~~ brilliant with a full moon - the first bright night

for a long time because of the fact that it had either rained or been cloudy during the majority of the preceding ten days. Whether or not the brilliancy of the evening had anything to do with the unusual vocal activities to be described, I do not know; I can only say that although I have spent many nights in this locality, quite a few of them recently (see under census of rabbits for record of attendance), I have never heard so many owls going all at once indeed, I have never heard anything like it anywhere. The night was not only bright, but warm and calm as well.

Lying in bed at 10:30 I could hear ~~hear~~ make out five individuals distinctly, with a possible sixth. Most of these owls were hooting more or less regularly, the intervals of four of them being approximately equal — although all four got started at different times, thus overlapping; in the case of the fifth, which had had much the lowest tone, the interval was noticeably longer

Bubo v. pacificus

between calls (that is between groups of notes, not between the notes or syllables themselves; I mean, in other words that he appeared to stop longer for "breaths" after each series of hoots than the other 4 kinds). This kind is designated as number 5 in the table given below.

Synopsis of hooted owl calls as heard on the night just mentioned

No. 1. Moderately high pitched; sound came from a considerable distance. Judged that this might be one of the pair that lives by the canal enclosure;

No. 2. Somewhat lower than no. 1; sound equally faint; doubtless is the mate of no. 1.

No. 3. Moderately high pitched; sound came from much nearer than that of nos. 1 or 2, as though this bird were down hill from the farm house, in the direction of the big hay barn there

Bubo v-virginianus

No. 4. Somewhat earlier than no. 3; sound came from about the same place as that of no. 3, of which it is doubtless the mate. One or the other, or both of these two owls (nos 3 and 4) gave vent to ~~some~~ two calls which I had never heard before. I could not tell in any one of the instances which of the two kinds was making it — I was too sleepy to get up and listen attentively for that long, and there was such a medley of hooting that it might have taken a half hour of listening. One of the calls was given quite regularly by one of these owls (I could have figured out which, in this case, had I been less tired), and consisted merely of an extra, short syllable tacked on at the end of the normal delivery, thus, hoo, hoo-hoo, hoo, hoo-hu. On two occasions one kind of this pair gave (what seemed to be) an

excited series of about seven hoots which followed each other in rapid succession without a break: hoo, hoo, hoo, hoo, hoo, hoo, hoo. My imagination pictured a grateful menacing owl giving this cry as it approached some other, intruding, owl, but my imagination may have missed the actual truth by more than a mile.

No 5. Very low in tone, a regular bullfrog bass, much lower than the lowest of the other four; from only a few hundred feet distant, being the nearest of them all; I don't know where to place this owl, as far as family relations go. Several times it gave an abbreviated call of a sort, which I have not observed before: hoo, hoo hoo.

A possible No. 6. Once I heard that eerie "shree" call, from close at hand, but had no way of telling whether it was made by No 5 or by a mate of No 5. I rather doubt that it was made by either nos 3 or 4 (and it couldn't have been made by the far distant nos 1. and 2) because they were too far away, and

Bubo v. pacificus

it was a characteristic feature of this concert that none of the participants shifted their position enough so that I could note any change in the direction of the sounds. About 11 or 11:15 P.M. they all ceased their hooting.

Note - I have not attempted to record the hooting of the horned owls on the Alpine Creek Ranch on every evening that I have heard them - that would mean recording this calling every evening that I am there. The owl calls, which I much more rarely hear, I do put down on each occasion however.

Mar. 30, 1934. Alp. Cr. R. by G.I. 4:25 P.M.; sun shining brightly on the hillsides, and lighting up even the canyons to some extent that they could hardly be called dark. I heard an owl start to hoot at the time just mentioned. The sound came from the sunny hillside just above the grand road, not from Los Francos Canyon. Of course the owl was

probably in the shade of a tree at the top, perhaps in the tops of pines which grows over there — at any rate it was very much daylight and not dusk at all. It kept hooting intermittently all the rest of the afternoon, and was still to be heard at dusk when I left. Perhaps the fact that this is the nesting season may account for the unusual activities of the owls.

June 7 — Alp. Cr. P. by canyon of the Conde de Madera. Of course I hear horned owls practically every night; this is recorded here simply because it pertains to a new (by discovery) pair. At 6 P.M., with the sunlight still bright even on parts of the heavily wooded east-facing canyon wall, two horned owls began hooting. Their calls were distinguishable by rythm and by pitch; the higher of the two was further distinguishable by the extra note added to the call "for good measure": —

high pitched individual — — —, — — —
low pitched " — —, — —

Bubo v. pacificus

June 13, 1932 - Alp. A. Park; west side of ridge, canyon east of Mirdego Hill. 11:05 7. M. (!!). I heard a horned owl hoot once (or twice) from the thickly wooded canyon on this clear sunny morning at the time indicated above. Of course it was shady beneath the trees in the canyon, but since the sun was almost directly overhead it was certainly not dark.

June 19, 1932. Alp. A. P. Have been hearing horned owls only at very infrequent intervals for about a month now. The last few nights have witnessed a full moon yet even so there has been hardly any hooting. I wonder if the beginning of the nest by the young has anything to do with this.

July 19. Heard quite a lot of hooting last night (from at least 3 different owls). This is the first time I have heard any since before June 9 (see above). There was a full moon, although I am not at all sure

~~that this had anything to do with it.~~

Aug 11, 1932 Indian Point Lake (Bankeville P.O.), British Columbia. Just as last August (1931) at this place, a young banded and recently on the wing ~~were~~ was much in evidence around the cabin. The McCales say that during the last ten years they have had a dozen or so of these birds around the cabin but that in spite of this, there has been a new crop of young every (late) July. Most of these ~~birds~~ collected (there) specimens have been young of the year, and they have never succeeded in shooting both parents at a time — and this doubtless accounts for the continued presence of the birds.

Whether or not the bird ~~were~~ was still accompanied by and fed by its parents I don't know, for the parents did not come in this sight, which was the case last year as well (although we heard them hooting then, which I didn't this year). At least however, the youngster, just as those observed last year, was still in the

stage where play, or curiosity, is an important factor in behavior. The bird was seen on several nights just at dusk (ca. 9 P.M.) around the clearing and on top of the cabin, and was heard giving its rasping chree, after it was too dark to see the bird. It showed its curiosity, when perched on one of the strangers of the cabin, or on a branch of one of the aspens ~~outside~~ in the clearing, by continually swaying its head from side to side, or bobbing it up and down as it surveyed its surroundings. When it caught sight of us, looking at it through the window, it redoubled its swaying activities, until it became frightened and flew away. Only one of these birds was present this season instead of two, as last year. Recently, those last year, the fluffy immature plumage was still present, giving the birds face, especially, a very round plump appearance.

Mrs. McCabe said that one evening, a few days before we

arrived, when the young owl came out at dusk, she had tied a string to the body of a (sharp-shinned, I think) hawk and thrown it out in front of the window while she remained inside the cabin and tugged at the string, so that the body flopped about on the ground. The curiosity of the owl was immediately aroused, and it flew down to investigate. It seemed afraid, however, for it alighted a little way off and then slowly approached on foot, with its wings raised and inverted in the manner characteristic of owls, and every feather puffed out, so that it looked gigantic. After it had come within a certain distance of the hawk's body it would approach no closer, and finally it flew away altogether.

y 18, 1932 Alpine Creek Ranch, San Mateo Co., Calif.
Last night there was a full moon and the owls here were hooting once more — three of them fairly close by. If their hooting is to warn off intruders one would think that they would

hoot most on very dark night and least on bright moonlight ones.

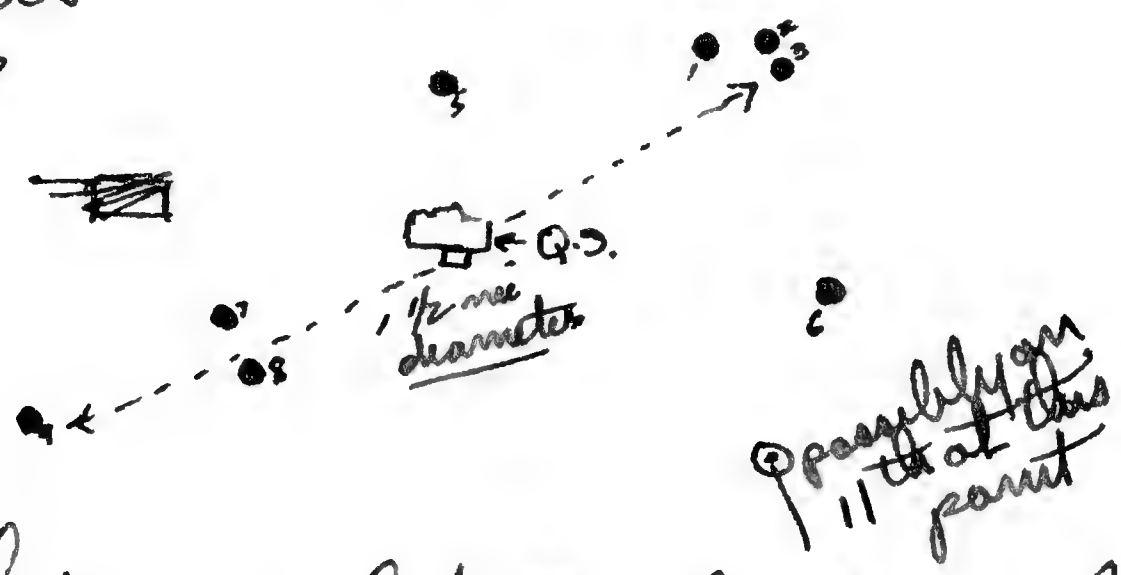
Sept. 3. Agnie Creek Ranch, west side of ridge by old deserted shack on road to Mindego Hill, the dark deep canyon where once earlier I heard a ~~b~~ barred owl hooting at 11 A.M.: ~~Ethel~~ and I heard the characteristic nasal braying chree (called by me "whyee" sometimes) of a young owl from out this canyon many times repeated during the late afternoon (5:30-6 P.M.).

Carl Bolanger says that he has known horned owls to catch gold fish and nearly clean out ponds containing them. He says that there were no herons anywhere near the region, but that the owls were plentiful and that he saw them do it.

Oct 1, 1932. Alp. Br. R., by G. D. Night cool and clear, with no moon; only star light. I heard 10 different horned owls hooting at one time at 9 P.M.

By "at one time" I mean they were all calling during the same period, but in succession, so that I could count them and distinguish them with certainty. The calls were differentiated by (1) position (which remained fixed for each bird) (2) rapidity of utterance (3) no. of syllables (4) pitch.

All these calls came from points within a radius of 1/4 mile, as follows.



Now this is a lot of owls for such a small space!!

Nov 30, 1932. Alp. Gr. R. This evening I trapped two cooper hawks with pole traps (see Campbell, p. 17), and at about 8 P.M. when I returned to the cabin a horned owl flew up from one of the hawks and sat on top of the cabin. The hawks I had left in the traps

on the ground, and this owl had just killed an adult cooperi, and would have fed upon it undoubtedly if I had not arrived just then. The cooper's hawk in question had one foot free to fight with, but of course, it only weighed 459.7 as compared with the owl's 1182.8 and besides it was dark.

wt of b. owl

The owl, still loth to give up its booty, evidently, flew to a willow nearby as I approached with my flashlight, and did not fly again during the time that I walked a hundred feet in a circle about him (radius of circle 50 ft) trying to locate him with my flashlight. Presently I found him, and brought him down with the 410 gauge sighting along the barrel with the help of my flash light.

A flat fly was secured from this owl.

Other data are as follows:

Sex. ♀; some eggs as large as this :-

Stomach contents 1 Jerusalem cricket

Bird was fat.

Bird seems to be unusually heavy. Cooper hawk feathers were imbedded in the mud which caked this birds claws (the c. hawk having been in a muddy spot).

About an hour later I heard what may have been a territorial or other dispute between some horned owls near the swimming pool. First there was a continued repeated cry of ruk-ruk-ruk on the part of one owl. This call I have heard from angry females when I was handling their young at the nest. Then there were a number of hoots from two different owls, and one of them kept up a sort of excited stuttering (only, unlike most stuttering this sounded distinctly formidable): who, who-who, who-who, who-who-who-who-who, or something like it. Once or twice in the past I have heard the same sort of "stuttering" hooting. After it there was silence.

Dec 5, 1932. See Lophortyx p. 431 for argument indicating that horned owls do not get quail very often.

Bubo virginianus pacificus

Dec 20 - Caught one in one of the pole traps by the Q.D., evidently last night. He was caught only by one front toe. Took fed. I left him in the (fox) trap until empty spring-house pen for the night.

Dec 25. This bird ate the jay completely except for a few scattered wing and tail feathers. Gardiner Bump and his elk must be smarter than I at the reading of evidence on such quills, for although I looked at all of these quills there were no grooves, nor even dents, as in the case of the sp. hawk, evidently one might tell that a hammed and had been at work.

It also ate a wood rat, all but the large intestine. It did not eat any from an 8½ lb. tom cat (domestic, feral) although I left the carcass with it during two nights, with the entrails exposed. I am surprised at this. The bird

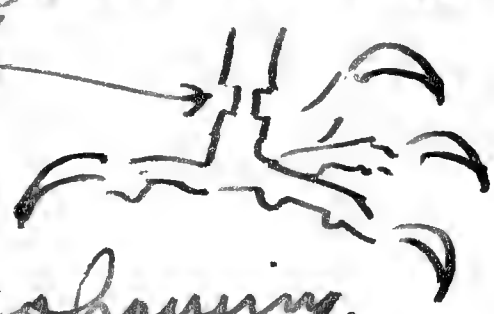
photos

I took pictures of and released with band no. 320759.

Blackfronted

Bubo virginianus pacificus 54.

Jan 8, 1932. Sp. R. R. See Opus avis Cardinei, p. 6, for mention that horned owls were not hooting this time although the moon was bright. Apparently the light factor is not the one (at least all the time). Perhaps it may be temperature?

Feb. 8, 1933. Caught another horned owl in same manner as first. Due to his struggles the trap cut through the flesh of one leg (other one not held by trap) to the bone almost all the way around  , the bone actually showing. There was enough of the tendon (of Achilles?) that ~~flexes~~ closes the foot left so that the foot closed weakly when I flexed the leg 

? Perhaps the bird will not lose his foot. Turned him loose, band 320761. Wt. 904.1. Got about 5 flat flies from him, two of these appearing on my own face only after I had started home, ab. an hour later.

Feb. 14, 1933. Caught another horned owl,

this time breaking the poor devils leg as a result of his struggles in the trap — even though it was wrapped with heavy cord. I am giving up the use of pole traps as a result of all this. If I get time, I shall make a catenarian trap for hawks later.

I left this birds foot on, although the bone was broken and the flesh mangled. I don't see how it can mend, but it may. Band is 320763.

Feb. 18, 1933. Donald D. McLean tells me that the ♀ horned owl always has the lower voice, the ♂ the higher. He shot three, he says; all hooted in the deep bass tones, all were females. (This is wrong, however, see p. 56)

Feb 25, 1933 Alpine Creek Ranch, by Mudge's Shack. Heard a horned owl hooting at 11:09 A.M. today. This is the earliest I have ever heard one hoot. It was a sunny, warm day, the sun eliminating (to some degree) even the exterior of the densely wooded ravine where the owl was.

March - 1933 - See under Lophortyx, p. 509, for

account of a Bubo trying to capture quail at night, on their roosts.

May 6, 1933 - Cooper Ornithological Club Eighth Annual Meeting, Berkeley. Alden H. Miller read paper entitled "The Vocal Apparatus of Owls" (illus). Don McLean must have been wrong (see p. 55): Horned Owls, Spotted Owls, Pygmy Owls, and others examined by him agreed in that the ♂s produced the lower notes (although the ♀s itself was of course smaller than ♂), and had the larger of the two syringes - the larger syrinx of course being correlated with lower tones

Dec. 19, 1933. Stomachs taken by Edmondson, state trapper operating on quail refuges in vicinity of Palmdale, Calif. gave the following data:

Oct 2, 1933 - 1/2 full - fur, bones of a cottontail; bones, scales of snake

Oct 1, 1933 - full - fragments of a scorpion; bones and hair of a mouse (sp?)

Stomachs taken by Chas. G. Hayes, trapper in same capacity, vicinity of San Bernardino, gave the following:

Nov. 10, 1933 - 1/2 full - mandibles, long bones, synsacrum, other bones, of Laphantyx c. californica

Oct 7, 1933 - full - furs, bones of a mouse (sp?); ~~chelicerae~~ pinchers of 2 scorpions, mandible and legs of jerusalem cricket.

Nov. 4, 1933 - 1/4 full - mandibles and other fragments of orthopteron.

Oct 28, 1933 - ♀ - 1/2 full - sand in quantity, small stones, mandible and legs of orthopteron (cricket?)

Nov. 7, 1933 ♀ - full - small quartz grit, mandibles of 4 orthopterons.

Dec 20, 1933 - Alp. Creek Ranch, by Q.D. Heard what must have been a squabble between two horned owls, possibly a territorial squabble, about 6:30 P.M. (deep dusk). Two horned owls were calling regularly, about 100 yds apart. One was giving the usual hoot, noticeably deep toned! The other one, which I

could see silhouetted against the sky on a tree top (type of station where hooting is usually done), was giving the harsh k-r-eek! noise (given also by young see antea). This noise was shriller than usual almost barn owl-like in its shrillness but much louder. In a minute the bird making the k-r-e-e-k! noise flew over to the other bird. At once I heard much flapping, loud bill snappings, and the k-r-e-e-k noise was uttered several times rapidly, only even shriller than usual, almost a squeal like the noise my young Bubos used to make in the laboratory when I was measuring them. The next moment the sounds stopped, the squealer flew back the direction that it had come. The deep toned booming continued at the scene of the fracas. Presently the k-r-e-e-k was heard again, not far away from the direction

in which the fugitive had gone. Possibly this was a young bird being driven from parents' territory, but it seems unlikely; possibly this was a case of two birds of the same sex squabbling as a result of rivalry engendered by the courting season.

Horned owls may often be decidedly wary in the daytime, flying when one is still 200 ft away, and yet be tame after dark, allowing one to get within 100, 75, and even 35 ft. In one case recently I rode (horseback) past a horned owl sitting on a 4 ft fence post 35 ft away, on a bright moonlight night. He kept right on hooting as I past.

Jan 18, 1934. More data on stomachs sent by Harges (livids in flesh, stomachs removed by me):

1. Rice Refuge, 6 mi w. of Pennis. Dec 7, 1933. 1 mandible of an orthopteron, a few stray rodent (mouse?) hairs.
2. Devil Canyon, S.B. Water Dept. Property, S.B. Co., Calif. Dec 6, 1933. Fragments of two insects, one, at least, an orthopteron.

3. Gavilan Hills, 6 mi. w. of Perris, Riverside Co., Calif. Dec 7, 1933. Long bones, fur, of brush rabbit; legs, mandibles other parts, of jerusalem crickets.

Pellets taken by Chas. Edmondson, trapper for Gordon Lowe on quail refuges near Palmdale gave following data:
Nov. 18, 1933 - Bones, feathers of a horned lark; jerusalem (?) cricket.

Buteo borealis calurus

3/18/30 Jamul Ranch, San Diego Co. ♀ flushed from moderate sized nest about 40 ft up in large sycamore in stream-bottom; ♂ observed circling about in vicinity.

3/19/30 Beckwith Ranch, 10 mi E. Escondido, San Diego Co. Calif. ♀ flushed from small nest about 40 ft up in large sycamore on bank of gully (along stream bottom). ♂ appeared and both circled about, screaming occasionally.

4/5/30 Strawberry Canyon, Berkeley, Calif. Bird heard screaming twice. This bird has been observed with its mate in this vicinity since about 2/8/30.

5/28/30. Los Banos Game Refuge, Corn of Mud Slough leading south to Ruth Lake, Merced Co. See original field notes on next page.

5

Los Banos Census 5/28/30. (3)

(a) Cypress of Mud Slough leading south toward Ruth Lake

✓ Avocets 11, 3, 1 feeding. 1 young 1/3 grown seen, but could not be found when crossed the slough for him

(1) ~~Yellowlegs 1~~

✓ Stilts 1

Killdeers 4 3. feeding on mudflats

(b) ✓ Main bridge across Mud Slough. Fourteen long 61 Cliff Swallows nests, occupied as recently so, 2 or 3 damaged in addition. One Black Phoebe nest with 1 egg - adults not seen. An adult Cliff Swallow hanging dead by one leg from a horse hair used in nest construction, the hair being imbedded in under side of nest. 1 Barn swallow seen flying by but no nests at bridge.

(2) c. Mud Slough further on - at Red tails nest in small willow partially over hanging water of Mud Slough. Old birds in air screaming and circling about. Young birds standing up in nest; nearly ready to fly. We cut the nest down, placed it lower down in tree with young in it, and

(over)

To night's calumus

Photos taken

photographed it. While I was shaking the tree in efforts to climb it one bird leaped out, sailed in rapidly descending incline and splashed in water of slough near shore - water 3"-4" deep after remaining motionless in water half standing half floating, it flopped its way with wings and feet to shore. Birds have neat full plumage except on head. Coat of jacket rabbit in nest. One of adults circling high in air dove with roar of wings at a Buzzard from considerable height. Buzzard dodged, circled to gain altitude and then made off in bee line. Birds when placed back in nest were content to remain there quietly. Was about 6-7 weeks old, now nearly 7. In same tree is a Bullock Oriole nest occupied and an occ. King bird nest, the two latter being only abt 4 1/2' apart. King bird and oriole seem not to fight both being in same part of tree at same time. One of young while being handled by Cheney, got loose with one foot and clawed his hand, drawing blood. (~~Continued on page 5~~) ~~One of adults chased force~~ ~~with by~~

5/28/30. Los Banos, as in previous case. Lower Mud Slough. Nest in low willow by margin of slough. Two large young ready to fly. About 300 yds away are ~~three~~ old nests formerly used by Bubo v. pacificus (Cheney).

7/8/30. Mud Slough, Los Banos Game Refuge - Same place where photos of young taken 5/28/30. 1 ad. seen perched in top of willow. 2 young flushed from willows at distance 300 yds. They flew well except for rather frequent flapping, and kept circling about the nest vicinity, still flapping, and crying (as in adult). Examination of nest (moved 5/28/30) showed by excrement that it had been used some time after moving. Hind quarters of Jack; skin, skull etc of ground squirrel in nest, much dried.

8/1/30. L.B.G.R. Ref. east of Mud Slough and north of junction with Salmon Slough. 2 young high in air, calling. 2 adults also high in air, circling. Looks like time when ads begin to drive the young away.

D.

2/21/31 L.B.G.R. Ref. n of Mud Pond
1 possible in grass-willow
clump 25 yards up from
pond at 100 yds. It flew away

with a (returning) flock of wild ducks
hung up from a tree, open
feet tucked [illegible] of the
[illegible] slough hundreds of [illegible]
alighted again, but was evidently
uneasy for it [illegible] again
before it [illegible] the
[illegible] and flew another
short distance [illegible] the
ground. [illegible] until it was out of
sight.

2/22/31 Near Olson Pond, L.B.D. Ref. 2
red tails, ♂ + ♀, flying one behind
the other and diving after each
other and now circling about in
wide slow circles, always heading
toward Mud Slough. Must be
the Mud Slough pair getting ready
to nest.

2/23/31 Just across west line of Refuge
boundary in willow tree on Mud
Slough n. w. of three legged tower. A
large freshly built up nest, not
yet lined in, constructed in same

tree, I think, where the Horned Owls rested last year (Cheneys statement). Both Red tails circling in air near nest. Horned owls (see Bubo section) not yet nesting.

2/28/31 L.B.D. Ref. pair of Buteos on M. Slough n. of main east-west rd. One bird sitting on nest other bd. ~~circling in air~~ sitting in tree near nest. Brooding bd. left nest and after circling for a moment lit in a sometree where other bd was, then lift and flew north and circled about one more, then following they flew about almost touching as they circled about each other, and one ~~flew~~ soared about for a minute or two with leg extended below him (♂?).

3/9/31 Kaufmann Ranch, Mud Slough n. of L.B.D. Ref. Nest in very old willow overhanging stream. 3 eggs in nest, 1 dried cool foot.

see page 2 also

3/14/31 L.B.D. Refuge nest s. of main e. + west rd. Bird seen standing in ~~the nest~~ as I drove by, but flew away without making a sound when I stopped the car. Alden Miller said that on 3/9/31 the nest appeared

very fresh and newly built up.
3/15/31 Same bird same nest, same actions.
3/16/31 Same bd. same nest. same actions. 1:30 P.M.
Ditto 15 minutes later.

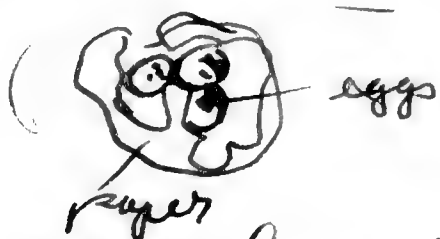
Note on the pair of red tails living on Mud Slough, on N. side of main E. & W. rd.

3/9/31 Nest climbed by Alden Miller, who found 3 eggs which were "covered up by a piece of meat paper". He said that this paper was held in place by some sticks which had been laid on top of it. The birds were not in the vicinity at the time nor did he see them during his visit.
He turned one edge of the paper back, photographed the eggs as thus exposed, then covered them up again and took another picture.

3/14/31 This day I saw no signs of either bird in vicinity of the nest, but I did not go under there to investigate

3/15/31 In the late P.M. I went to the nest, having seen no sign of

either bird during the day — although further to it has been the usual thing to see one of the birds soaring or perched in a nearby tree, while the other was on the nest. When I got to the nest I found the "nest paper" to be a piece of rather thin white wrapping paper. It was torn considerably and twisted about so that it encircled but did not completely cover the eggs, and seemed to hold its position in the nest simply because of being entangled by upward projecting twigs and not because any sticks were actually laid on top. Apparently it had been slipped and torn since Mullen's visit. The eggs were



cold. I left all as I found it and left, still without seeing anything of the birds.

3/16/31 10:30 A.M. I stood by the nest tree about 10 minutes without seeing a red tail anywhere. As I was about to go I saw a ♂ & ♀ red tail circling

in the air about 1/4 mile to the north, above Mud Slough. This must have been the pair, for the nearest occupied red tail nest in that direction is 1 mile further north, and the ♀ is incubating 3 eggs on it. However, they soon disappeared (was watching geese & didn't see where) without coming near their nest or protesting at my presence.

3/17/31 Same as above — pr. n. of main e. & w. rd. When I first drove over there in the A.M. I saw one (♀?) bird circling high in the air above Mud Slough to the north, as yesterday. As I went toward the nest the hawk sailed near the nest also passed by it still high in the air, made a loop around it and began circling again. 5 minutes later I heard a scream from this same section and saw lots of the red tails circling together. A few minutes after this I saw one back in the north again sailing west. The other I did not see. Looks

as though they were going to build (or renovate an old nest) farther up Mud Slough.

3/21/31 L.B.D. Refuge, Mud Slough n. of main e. & w. rd. Pair of redtails north of their deserted nest, both in the air, just as before

3/26/31 Delta Ranch, n.e. of L.B.D. Refuge along Mud Slough Bird flushed from very bad nest (18 ft) in small willow only after we had driven past within 30 ft twice. The nest contained 4 eggs and the wing, foot and ischium-pubis-ilium bone + vertebrae of a mud hen, only very recently killed, with meat not entirely dried; beneath the nest was the other wing. Nest bulky and well cupped lined with some marsh plant which had been pulled up by the roots, it resembled a cat tail but was shorter. Mrs. McCabe tells of seeing an immature red tail swoop down upon a flock of mud hens and pounce upon one. The mudhens, which were feeding on the bank, dashed for the water, but having reached it, paused and eyed the hawk with

see typed page 2 Buteo

attention. The hawk meanwhile was holding the mud hen down flat as its back by standing with one foot on either of its outstretched wings (she could see the coots legs kicking feebly) and biting at its head. This it pecked until the mud hen ceased struggling, when Mrs. McCabe scared the hawk away and secured the mud hen. ** The nest mentioned above had freshly torn off willow shoots, with the young new leaves still green upon them, for the "green material" of the nest.

2 photos of nest with eggs & mud hen remains

3/27/31 Buteo n. of m.c. & w. rd. An old nest about 500 yds from the deserted one seems to be receiving new materials for it is considerably built up. [The deserted nest was blown nearly out of the tree 3/22/31 during a very strong wind, and the eggs were smashed on the ground below.] To day, after waiting 15 minutes in the vicinity of the remoated nest without seeing any red tails or heard a single scream from high

in the air so high that in the glare of a bright sun, I could not find the bird. I heard no other, and it came no nearer.

3/28/31 L.B.D.R. nest s. of Mari e. & w. rd. Eggshells scattered on ground and nest deserted. The hard winds we have been having recently (see previous note) must have spilled them out.

New, or renovated nest rather, of birds nesting north of Mari east and west road. I plan to make an intensive study of their nesting activities so all notes unless otherwise designated will refer to them.: 7 & 7 hushed twice from within a hundred feet or so of the renovated nest today. I did not go very near it for fear of further disturbing them, but can see that it has been extensively built up.

3/29/31 7:17 A.M. (when I first looked) – a bird (don't know sex) had just flown from the nest, and making a wide circle lit on the ground 60 ft away, remaining there 5 minutes; it then flew by the nest again and lit in the top of a very small willow. It seemed to have difficulty holding its place among the slender

top branches for it kept raising and flapping its wings to balance itself and kept treading about with its feet as well. Part of this treading about and flapping was to tear loose a willow branch. I think, for it would bend its head down and appear to pull at its support. While the bird was there its mate suddenly sailed up to the nest and alighted with a very discernible leafy stick, such as a willow, which it placed on the edge of the nest, standing near the center and pushing and shoving this or other pieces into the nest with its bill. In about a minute it flew away and as it left the other one, which was still in the willow, flew from there in a circle behind the nest and then up into it bearing a leafy branchlet also. Its behavior was like that of the other bird, and while it was working into stick the other bird returned - perhaps 5 minutes after its exit - bearing another branch. The two birds worked side by side

on the nest for perhaps two

minutes, when one, presumably the ♂ left and disappeared. The other bird worked on for a short time and then sat down in the nest, got up, turned a little, sat down again, and kept on poking and shoving with her bill at the sticks on the edge. She has remained there to date (7:43), occasionally shifting about but for the most part sitting quietly, looking about, with more or less frequent rummaging about in front of her, where she sits with her bill.

7:55 ♀ still sitting, ~~said~~ ♂ sitting in a tree doing nothing in particular; he had been sitting on a fence post a moment ago but a small bird (too far away to see what) kept diving at him from above, so he shifted.

The observation point from which these studies are being made is a tent placed about 1000 feet away but in full view of the nest and nesting territory. It blends quite well with its surroundings and it is opened on the hawk's side, only enough to admit the binoculars through a slit.

The other side of the tent is open but I am taking the precaution to stay inside until the time of my final exit; even the Ford is parked behind some willows 500 ft further away. (These are the birds that deserted once already this year.)

This section of Mud Slough, and particularly further north, on Kaufmann's property, is more populous with nesting raptores than any place I have seen (under Buteo and Buteo see notes for 3/26/31). From where I sit now I can see a red tail soaring above its territory a mile further north from this pair while to the south another red tail has its nest a mile away also (just blown over recently, see 3/28/31). In between these two is a nesting Buteo, and I think there is another pair even closer to the observation - pair of red tails, but if so I haven't yet been able to locate it in spite of a thorough search. Competition for raptorial birds in this type of flat country with few trees is like that

of marine invertebrates — for "space to sit on".

8:33 Got up, stood for a moment, hopped with out stretched wings to a nearby branch, then sailed away down the gully, where I lost track of her.

8:43 One bird perched on a branch by the nest; the other one ~~inside~~ on the nest, rearranging twigs and sitting down; the 1st one, probably the ♂, flew away a moment later but the other one remained, behaving as before.

8:59 Still on

9:18 Gone. Left at this time also.

4/2/31 6:30 A.M. (when I got up) A hard wind blowing and no bird visible on the nest (Telescope used).

6:45 One bird (♀?) observed to come from some where beyond the telescope field and alight on the nest, and about that same time the other bird flew past. The first bird poked its bill down into the nest — it was blowing to beat hell again, with the tent flapping so I could not see well — and seemed to be arranging sticks as on the other day, but I could not make out that it brought

any new ones. While it was doing this the other bird (♂?) appeared in sight and alighted in the top of the tree, balancing in the wind only by dint of some swaying and the occasional extension of a wing. In about 30 seconds it moved from there down to the nest and both birds stood side by side there, the ♀(?) pushing about occasionally with her beak. In about a minute more the ♂ flew off, while the ♀ remained not sitting down as before, but standing up, motionless, and looking about, not as though anxious but more as though having nothing more interesting to do. She was facing more or less into the wind but it was blowing so hard that even so the feathers of her neck and back were much ruffled and turned back. She remained standing so until about 7:15, when she got up and sailed away. About this time I left the tent and walked down the Slough & got a piece of rope and saw, one bird sailing past the nest. I don't know

whether it saw me or not but doubt it.

8:40 No birds seen around the nest since 7:15.

10:06. No bird has yet been seen; wind blowing nearly as hard.

11:40 Still not on nest although watched continuously

12:10 Both birds found to be sailing high in the air (200-300 ft) to the south and east of the tent. They seemed to be observing us (the flap of the tent away from the nest was open), for they would sail past at a distance of 500 yds or so and then face into the wind (still blowing hard from N.W) and hang there facing us for a few moments. (see map of territory page 100). After about 15 minutes of this the ♀ sailed over the tent, at the same height and disappeared (i.e. could not be followed without getting outside the tent) to the north; the ♂ had vanished to the N.E. in the same way.

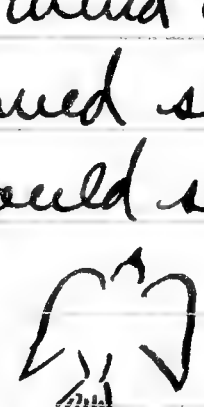
1:35 One of the birds sailing about 1/2 mile to the west. Watched for

Wind still blowing, but not so strongly.

1:40 Other bird seen high in air

about 1 mi to S.W. The first bird is still circling in the general vicinity only a trifle farther south of 1st position. Disappeared again, in the distance about 1:45.

3:11 Both birds seen circling about 300-400 ft in the air and 3/4 of a mile away to the south. Part of the time they sailed about near together, and but mostly they were some distance apart. Once one of the birds dove down upon the other from a height of 30 feet or more. and then continued sailing. About 3:20 they seemed to come down in some willows 1/3 mi S.W. by S.W. of the tent along Mud S lough but although Ethel kept a close watch while I went over, there and saw no birds nor there was no sign of them. They must have merely dipped down out of sight behind some higher land and kept on going. About ten minutes after I had got to that place we both suddenly saw one of the redtails (or third from different plants) sailing above me ~~for~~ It moved off northward, sailing with motionless ~~closed~~ wings in this direction: → (wind and then

turned directly into the wind without once flapping and moved slowly against it. ~~One in a while~~ ~~Frequently~~ I could see the bird partly close its wings  and incline its ant. end slightly downward, so that it appeared to be gliding earthward slightly, but it never lost altitude enough to be observed, and I think that the downward movement was counteracted by the force of the wind ~~the direct resultant of these two forces being a nearly straight line~~. When a mile or more away I lost sight of it.

5:08 No hawks on nest since 6 P.M.

6 P.M. Birds still not around nest.

6:50 (about). Sun has been down behind the mts. for 30 minutes but it is still light enough to see. A hawk (I think, by size) flew from the west nearly over the nest at a height of about 50 feet, but passed on beyond and was lost in the dusk. I watched ~~until~~ for a half hour more, when the moon was well up in the sky, but no redtail returned.

Later that same evening: Climbed tree and

examined nest with flashlight. It is about 25 ft up in a small but unusually dense cottonwood which leans out of the water, the nest being well out on the water side. They have built it up 10" or more above the level of the old nest, using small willow branches for the "foundation" of the new part, and some - - (the gummy-flowered composite on this place). There is no real cup yet, although in the center of the nest are a few wisps of dried grass (C. spectrum collected) which look as though they would be shaped into a cup later. Nevertheless half buried in this loose grass material, there was one egg, of which little more than the top it could be seen. It is splotched faintly and sparsely with light brown - a rather pale and plain egg. I took some of the nest material away as a sample. One willow branch is 1/4 inch in diam at the place where it was broken off, and is tough and green, with some leaves and catkins still on it; another is about 3/8" where broken off, but is dead and more brittle, although still quite resistant. In a small rough dead willow twig, bearing many tiny shoots

which are stiff and rough, is entangled a piece of down. This as well as other downs I suspect of getting entangled in such places throughout the nest when the bird is squatting down and turning around to cup the interior, as she frequently does.

4/3/31 6 A.M. Bright sunlight (dawn must have been about 5 A.M.). No hawks visible. The morning is perfectly clear and calm.

6:30 A.M. One of the hawks discovered to be perched motionless upon a fence post about 200 yds from the nest. It may have been there a long time; no trace of the other bird.

7:23 A.M. Perching hawk has not moved in all this time; still no trace of any other bird. The hawks were doing more building yesterday, when it was blowing so hard, than today with a perfect calm. Probably a wind such as that does not trouble them at all, however, from the point of view of nest building.

7:58 He has flown away during last 2 minutes, but I did not see where.

10:58 No bird has been seen near the

Buteo R. columns

nest all this time, but now both birds have been discovered sailing very high in the air to the south, east and west. At one time they were close together and one close at the other, again but for the most part they sailed in different parts of the horizon, continuing gaining out of sight of the naked eye and even being difficult to follow with the X12.
It occurs to me that the reason they may be seen in the early morning perched motionless, while later in the day they are on the wing at a great height is that the air currents which they make use of in their soaring activities do not commence until about this time of day. At times they move with great rapidity across the horizon by gently closing their wings and gliding on a long incline and then, without cause other than that they have reached a certain distance from the nest, they will stop gliding and commence to circle and gain altitude once more

12:50 No hawk at nest; observation stopped until

Buteo b. calurus 23.

[red tail ~~#~~ s. of main e. & w. rd. on mud Slough - see Aquila chrysaetus pp. 2-6 for territory squabbles].

Red tail being studied at camp:
Was away ever since 12:50.
7:10 P.M. - so dark that nest can be made out only in silhouette; no bird out, as seen when car lights flooded the whole tree.

4/4/31 4:50 A.M. Full moon, no dawn, no day-bird sounds except a few horned larks occasionally; 2 Buteos hooting continually.
5 A.M. First lightening of the sky, moon still shining. Nest discernible but no details
5:15 Can see the nest well now; morning doves calling
5:30 Meadowlarks, blackbirds, calling; still no hawks seen.
10:A.M. Red tails seen both circling together in the west; the nest has not been visited yet today.
6:15 We were driving by on road just south of the dam when we saw both birds flying from the south about opposite the bridge over Mud Slough. The sun has disappeared, although it

is not yet quite dusk and they moved straight along flapping most of the time. Each bird lit in the willows near the dam — in different places — for about a minute. First one bird got up and flew away across Kaufmann's to the north and disappeared in the trees along Mud Slough on the far side over there and then the other bird did the same thing. I think they spend their nights over there, especially since on 4/2/31, at 6:50 P.M., the ♀ flew over in the same direction about dusk.

4/5/31 [Kaufmann Ranch along mud slough north of Refuge "Tree of Many Nests" This tree contains a horned owl nest and ~~three~~ four other nests. (This horned owl noted when I was over here with Cheney earlier — see under Bubo) None of these other nests are occupied at this time, but there is a red-tail nesting near by evidently because when I scared the ♂ horned owl out of this "T. of M. N." a red-tail immediately

Buteo b. calurus

appeared, gave a scream, and dove at the owl from a height of about 75 ft. The owl was alternately sailing and flapping away from the nest over a wide field of tall grass and mustard; as the redtail dove it made no effort to turn over onto its back and received the blow of the hawk's talons in the middle of its back; the redtail however had by this time commenced its upward dive so that it did not hit the horned owl very hard. The owl immediately dropped down into the long grass where he was nearly out of sight and remained there until I went over and scared him up, the hawk not repeating the attack although by this time the hawk's mate had appeared also and had flown out a little way after the retreating owl.

Nest with 4 eggs on Delta Rand land (see notes for about 1 week ago) — deserted; no sign of either birds present.

Study — pair once more.

4:10 P.M. Both birds seen circling off to the ~~east~~ west of the nest, now near and now far off (see mental the 3 l. towers 1/2 of a mile away). About 10 times, while they were circling near together, the ♂ would lower his legs and adjust his circles so that he came above his mate and about four times he actually touched her back — or so it seemed with the xirs. Gradually they moved over the nest and then the female kept on sailing east while the ♂ mounted higher and higher until lost to view. The ♀ kept going east until about 3/4 mi east of the nest and then commenced to circle; all of a sudden while I (Ted) was watching it the ♂ appeared from the east, from way high up and sailed down very fast to join her — a minute before he had been over in the west, mounting into the sky. They repeated manoeuvers in the

east, gaining altitude and also nearing the Slough way off by ~~xx~~ Kaufmanns property.

Five minutes later, they are circling in the west again.

4/10/31 Nest studied above. Examined in the late P.M. (6 P.M) and saw no signs of either bird. After dark I climbed to the nest and saw that it had not been visited since the last time I had actually seen the birds in the nest – about 7-10 days ago (see earlier notes). They seem to have deserted the nest.

4/11/31 Same as above. Both birds noted circling high in the air in the near vicinity of the nest – as usual.

e changed → Studies are now to be transferred ~~to~~ the pair nesting s. of the mouth e. of w-road. About 150 feet from their other nest – which had had the eggs blown out during a wind as noted earlier – they are building an entirely new structure ~~so~~ of which no part was present before. About 11 A.M ~~to~~ today I saw one bird circling above the nest but could not find the other bird anywhere, although

I drove by on the road within 70 yds of the nest and could see that no bird was on it.

4/12/31 (7 AM) (When I first began to watch). Nothing in sight anywhere.
7:10 A.M. I discovered one of the birds perched on the very end twigs of a low willow; it had not been there previously for I had looked over all of that stretch. The twigs bent so under its weight that it balanced with difficulty and in about two minutes it left and flew south along Mud Slough to another low willow about as far to the s. of the nest as it had been to the n. before (1/5 mi?). Here it stayed, preening and "just sitting" in the sun until 8:10 when it left, perhaps on account of the Ford truck which went by quite near there. Twice during this time its mate appeared from somewhere and lit in the same tree, and each time the new comer shifted position in just a moment and alighted on the same branch with the other one and so close that they almost touched. The other bird did not give way or

appear other than agreeable at this nearness and there they stayed each time for perhaps 5 minutes, hardly moving. Each time the second bird left, however, I lost it. At 8:10, when the first bird left too, I lost them both for 5 minutes but at 8:15 discovered them circling high in the air after the manner of the other pair watched. They never flapped, although rising very high at one time and then coasting down to a lower elevation on set partly folded wings at another. I lost them at various times and at 8:45 found one again just as it was flapping past the nest hardwood; how long it had been in that vicinity I don't know; the other bird was still high in the air. The lowermost came to rest in a partly dead willow 1/6 of a mile s. of the h. and in another moment the second bird had come down and perched near it. They stayed there about 1 minute, then shifted to another part of the tree, then back, then the newcomer flew away and began to sail upward to higher altitudes again; the first comer is still sitting in the tree (9:07). I forgot to

mention that while both were in the air one of them sailed over to within 1/4 mile of the tent (I am a good 1/2 mi from the nest), high up, and hung more or less in the same position. I think it was examining the tent which constituted a new feature for its landscape. I am certain that that was what both birds of the other pair studied were doing on the first (windy) day that we observed the tent all day long (the last day they were near their nest). In their case they flew with the wind past the tent and then turning, hung pretty nearly motionless facing the tent and quite close up — or in other cases they soared into the wind from some other quarter and passed over close to the tent on their way to some other point in the sky. I feel certain, too that a redtail can soar all day without flapping a wing after it has warmed up enough to produce hot areas, or there is a wind

9:15 This bird which had been sitting ~~for~~ since 8:45 moved up to another willow nearer the nest and

while I was watching the other ♂, came up to the same tree, hung for a moment just over the ♀ then alighted on her back and stayed there about 40 seconds with quite a bit of wing motion to balance himself then got off and perched beside the ♀ on the same branch, then flapped off and began to circle one more high up and bearing off to the N. where I lost him. I think I saw this copulation at about 9:06 too, but it was hard to see them clearly enough at that time so I didnt write it down then. At about 9:25 the ♀ also got up and began to circle about high up. A flock of about a dozen mud hens could be seen craning their necks to the fullest extent and walk about gaudily and uneasily in first one direction and then another (I could not see where the water was) as the hawk neared them; it never got very near, however, and so they did not leave their feeding grounds.

This is the pair that harassed the eagle two weeks ago (see under Buteo and Aquila) but they seem not to be

concerned by the various gray blue herons or egrets which often fly up the Slough past their nest.

At 9:40 I lost track of the ♀

9:50 Both birds discovered very high in the air east of the tent, on motionless wings; I suspect them of inspecting the tent and me. Soon the ♀ coasted w.n.w. and disappeared a mile away; I lost track of the ♂ too.

10:55 (Observation only fairly constant) Both birds discovered in some half dead tree where seen copulating earlier. They moved about in the tree and disappeared behind it for a long time where I could not see, then one went away and made a loop about the nest and returned in the direction of the tree while the other sat on a branch of the dead tree and was assailed by a blackbird which kept diving at it and then alighting in the same tree, a few feet to one side and then diving at it again — all without the hawks seeming to pay any attention. Then ~~the~~ this bird got up too and together they ~~flew~~ sailed high up into the air north, then east, and then directly over my tent and south east until I lost them on account of

the sun. At about 11 I suddenly noticed the male in first one hand ~~flying by another~~ actually on the nest. She stayed there about three minutes, settling down into it at first and remaining there about 1 minute and then standing up the remaining two, turning around and bending down as though to arrange twigs (it was very hard to see on account of the heat waves. Then she flew north to the top of another willow 100 feet away and the ♂ flew up from some where lit on her back and copulated - it taking about 6 seconds - and then spreading his wings and giving a few flaps was wafted up from off her back by the wind and sailed away, being followed shortly by the ♀.

11:45 ♀ seen to fly onto the nest. She stood up in it, turning about from time to time and bending over as though to poke sticks into position for 5 min. when the ♂ flew up, alighted on the nest and I think copulated, although the heat waves made it hard to tell. at any rate he left in about 30

seconds while the ♀ stayed there and presently squatted down on the nest. She remained squatting for about 2 minutes then got up, went to the edge of the nest and flew away, alighting in a willow 150 ft further n.

12:01 left this perch; not seen by me where she went.

12:30 Attention not on nest for last 10 minutes. ♀ now on nest, now rummaging around while standing up and now squatting down; ♂ in top of half-dead tree mentioned before, just sitting.

12:40 Still as above. Operations ceased until: 4:20

4:20 ♀ on nest, sitting still, and motionless; ♂ perched in a tree 200 feet north, also motionless

4:35 ♀ still on nest, very low down so that only her head shows above the edge.

4:45 ♀ starting up; ♂ has appeared from some where and is standing beside her in the nest, he lowers his head as though looking at or poking at something.

4:50 ♂ left and flying low, disappeared

behind the line of willows so that ♂ could not follow him; ♀ still standing up.

5:07 ♀ still standing motionless in the nest facing east.

5:08 ♂ (? hard to distinguish size diff. when they are in the nest, I am judging here mostly by actions) back in nest again and rummaging as before, only this time so low down in the nest that he is hardly visible.

5:10 Raised up, hopped to a nearby slender branch and took off as before, disappearing in some place. ♀ remained motionless and standing up throughout this.

5:10–6:30 ♂ made two more visits to nest, both like previous visits except that during second one the ♀ was so low in the nest that she was hiddenby the ♂s body most of the time. After this the ♂ flew to his perchingtree n. of the nest, stayed there about 2 minutes, rose, made a loop back around the nest and resumed his position at in the perchingtree where he is now (5:35)

5:45 left nest and went to willows just to the south where he perched out of sight in about 2 minutes he came back to the nest again - without anything in his claws or beak so that I am certain this time although not sure about the previous visits. Two minutes or so later he left the nest, flew north, close to the ground, made a loop and was back of the above mentioned willows; a flock of mudhens jumped off the bank into the water as he passed near and I could see the water splash every from here. He took up a position first in one place then in another, and finally sat half way out on a dead branch of a willow just to the south and reaching down seized it near the tip with his bill and pulled upward, but broke; it did not break so he flapped vigorously with his wings, beating air and several times losing his balance, but the willow wood was too tough. In

a minute he stopped and flew to the nest without anything he and his mate are there now (6:13)

6:14) — ♂ left and flew south to deadtree again, remaining in that place several minutes but not trying to pull off any more branches — later he slighted his station, then returned to the nest, I think with nothing although I'm not sure. He is there now 6:19.

6:20 ♂ back to "favorite perch" tree at north. ♀ is still on nest.

Note: the tree from which the ♂ tried to break a branch and in which he has been perching frequently is the tree containing the previous nest, and his operations, just watched, have been carried on 10-15 ft below the abandoned nest!.

6:44 ♀ still on nest; don't know where ♂ is.

7:10 Dusk; sun has gone down. I very slowly approached the nest in the D. canyon yet while I was nearly 1/5 mi away the ♀ left, and she and the ♀ flew first southward then north along the gulch line, flapping (no warm air), but not

rising up above the trees or soaring as I should have thought they would for an intruder. After perching here and there near the nest they went to the vicinity of the tallest willows on the refuge, 1/2 mi. S. of the nest, and were not seen again. Very cautiously I approached on foot the last part of the way, and climbed the tree. The nest was not very large but was well built up with a high edge and a very deep cup evidently not completed. Near the center of the nest was a young meadowlark apparently partially plucked, and away over on the s.e. edge of the nest so near the edge that it would have rolled off had it not been partially covered up with nest twigs — was a single egg!

4/13/31 5:25 A.M. (It was only light enough to just see the nest from here at 5:15, and I saw no bird on it). One bird flapped past the nest, disappeared behind the trees and 1 minute later was on the f.p. tree. It stayed there for a second then left & disappeared behind the trees again.

5:45 male appeared on a perch to the

south then left, made a loop around the nest flying very close to it but not alighting. About 3 min later I made out the ♀ sitting in the same pantly dead tree where they were yesterday P.M. Then the ♂ appeared, stayed there a moment then made another loop around the tree, then back and copulated with the ♀, then flew past the nest again and was lost. In these flights back and forth he has been flying very low – barely skimming the ground – and I suspect him of being on the lookout for food.

5:50 ♀ on the nest, turning around and poking here and there, and at other times standing up motionless.

5:53 ♂ came and joined her then left went to f.p. tree and tried to breakoff a stick; he seemed not to be successful but I may be mistaken, at anyrate he joined the ♀ on the nest.

5:58 Both birds have left, and keep flying back and forth along the slough banks, very close to the ground. once one bird went very close to the ground quite far

north past the pt. by a lot, and alighted; it stayed on the ground and I could see it run (!) - not very fast of course - for ~~some~~ three or four steps, with its head down, then stop, then run again, etc. In about a minute it left apparently empty footed and flew past the nest to a tree to the south and alighted.

6:10 both in nest, then ♂ left, and ♀ left in nest turning around preening herself etc. Left at 6:20. Observations only intermittent from this time on.

6:40 - 6:55 ♀ still on nest with feathers ruffled out, sunning and occasionally preening. She might be laying an egg to by her general hunched up appearance. Also I doubt that an egg was laid yesterday.

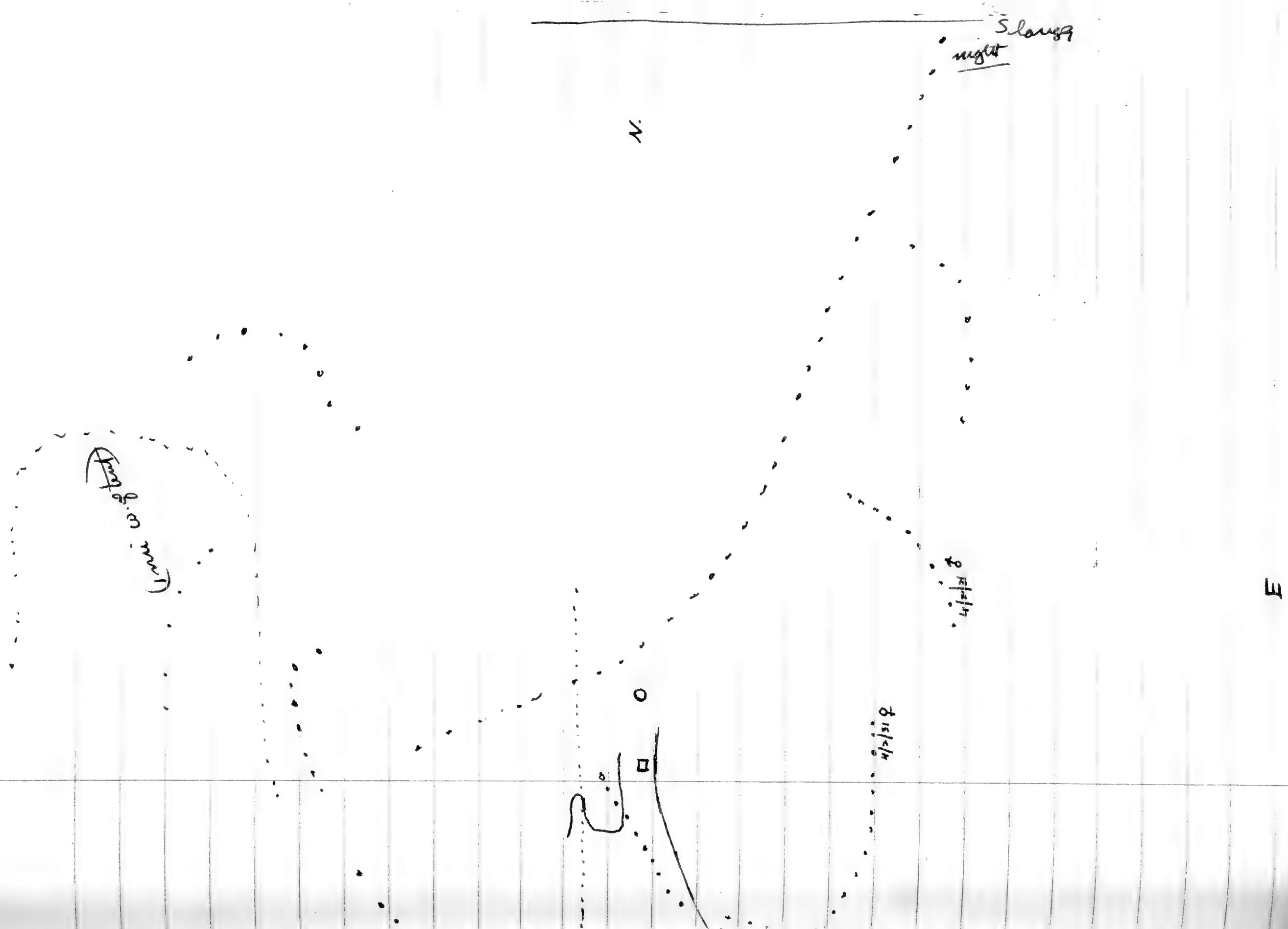
7:15 ♀ no longer on the nest.

7:40 ♀ still off; one of the birds is perched in a nearby willow.

7:50 ♀ perched in nest tree 5 ft below "first nest"; ♂ perched in "pantry dead tree" to the S.

7:57 Same

8:13 ♂ same, ♀ back in nest and seems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to be eating something — as near as I can tell in the heat waves — at least she keeps bending down and pulling at something which seems to be beneath her feet, with repeated looks up and hunched pose characteristic of feeding raptors; also she is way up high on the edge of the nest and not rummaging about in the interior

8:15. ♀ perching upright now; ♂ in dead tree as before.

8:25 as above.

8:35 ♀ on nest, standing upright; ♂ not in sight.

8:52 one bird perched 5 ft below the 1st nest, other circling fairly high in the air to the north. Observations ceased at this time.

1:P.M. (I have just returned) ♀ (?) on the nest; ♂ in h.d. tree.

1:23 ♀ on nest, ♂ soaring just above nest. This is last observation for today.

4/19/31 Pair being studied, as above.

6:45 P.M. (time of my arrival). Sun just going down behind the hills. One bird seen flying past the nest, and a moment later standing up in it. ♀

got into the Dodge and drove very slowly (low) toward the nest, until 1/4 mi away from it. While I was doing this the bird left the nest and took a perch in the p.p. tree until 7:07 when it flew back, very low, past the nest, and was lost behind the line of willows near the nest at 7:08 (hard to see in the dusk) I made out the a bird (don't know which one) in the p. dead tree to the south. It left a moment later but don't know where.

At this time I started to leave the car to approach on foot, but was stopped by the appearance of the bird, sailing past again; it disappeared in the trees to the south, just as last time I approached the nest, so I started once more, and saw no more of the Red tails that night. By that time it was hardly light enough to see them 100 yds off anyway. The nest appeared somewhat built up around the edges and had a very deep cup (4"), lined with some sort of grassy material. (I didn't have my flash light. There were two eggs

this time and they were in the center of the cup. Over on one edge of the nest was the half eaten, very dry remains of a 3/4 grown ~~young~~ rabbit(?) which by the smell must have been killed the preceding day.

4/20/31 7:30 A.M. (When I first looked). ♀ sitting in "old nest tree", Got below the old nest; ♂ in f.p. tree.

7:40 ♀ was above but ♂ has disappeared.

7:50 ♀ still on nest; ♂ appeared from among the trees, flying low, carrying what appeared to be a small white branch (that waves!) at least it was much smaller than anything like a meadowlark or other prey. The flew past the nest, alighted, got up, flew in a loop past the nest again, alighted, was swooped at by a redwing (-bicolor) while perched, but paid no attention, went past again, and disappeared low down behind the trees again. Shortly after this the ♀ left the nest and disappeared in the same direction.

8:03 - a bird flew over the nest and lit in the f. p. tree. 8:05 left but not seen where.

8:12 Both birds appeared from place where last seen to go and flew past the nest, the ♀ alighting on it and the

♂ flying on to the ♀ tree. The ♀ turned around once, squatted down so that only her head could be seen then got up again and remained standing, which she is still doing (8:16). The ♀ seems to spend a great deal of time doing just this at this particular stage of family life.

8:20 As before except that ♀ seems very low down in the nest — too low to be standing and too high to be sitting quite.

8:22 She rose up to full height and shifted to another position; she is now sitting-positively — however (8:30), for I have approached in the Dodge and can see. It will be noted further back that the stick which the ♂ brought was never taken to the nest. 6 ft from the perching ♂ a bluejay has his permanent station — in the very top of the same willow and every few minutes the blackbird hovers above the head of the hawk, coming very close; the latter pays no attention however. There is a blackbird, also, in the favorite lookout of the hawks in the 1st nest tree — nothing is sacred! The long hours spent in merely perching, doing nothing, seem contrary

to Grinnell's idea that no movement of bird or beast is non utilitarian. Certainly these birds are not in actual need of all this rest which they are getting, as J. would maintain, neither do they seem to have to spend all this time waiting for the appearance of prey — the latter is abundant and besides, when they do their hunting they dont sit still, they fly low over the ground and pounce.

8:50 (about). ♂ disappeared from panel for a moment but was back in same tree — another part of it — 2 min later, the blackbird being still there with him. ♀ is brooding still. 1 min later ♂ flew past the nest to the f.p. tree — where a blackbird is also harassing him.

9:06 (about) ♂ left position, flew past brooding ♀, circled 70 ft in the air for 1/2 minute, then dropped down, sailed past the nest again but on a lower plane, and disappeared behind the line of willows where as usual he could no longer be followed.

9:05 (about) ♂ still not visible; ♀ got up and stood in the nest for two minutes or more, occasionally bending her head

down as though poking about, and then sat down again

9:28 (about). When I got out of the car to look for a Cinnamon teal's nest the ♂ flew up from the vicinity of the nest (couldn't tell where he went for I was looking for the ♀ teal), but the ♀ hawk remained sitting on the nest.

10:30 ♀ still on nest but standing up; ♂ seen to fly past nest and disappear behind trees as usual; he must have some favorite perches there.

10:34 ♀ still standing up; ♂ on perch below old nest tree.

10:41 ditto.

10:55 ♀ May have got off for a moment; I could not make her out in the heat waves very well; at any rate she is now on the nest standing up. ♂ is still where he was.

11:04 ♂ gone; ♀ on nest, sitting.

11:10 I approached again with the Dodge-certainly. Yes the ♀ is on the nest, sitting very low, and has been all the while, without a doubt. When still ¼ of a mile away the ♂ left his perch near the old nest and began to circle high up,

a ~~typ~~ characteristic sign of uneasiness, apparently.

11:20 ♀ standing up in nest. She did this for 5 minutes while I watched; suddenly I saw the ♂ still high in air but coming lower, from the S. (he had left at the N.) he was approach the nest, apparently no longer uneasy, and seemed to be playing as he flew, for he would sail along straight and then shoot upwards a few feet with wings closed then, turn, point downwards, and dive headlong a few feet earth-ward still with closed wings, then open his wings, catch himself, fly horizontally again and then do it allover again*. This he did 3 times by which time he was nearly above the nest, at which he suddenly turned in mid air and swooped down past the nest out of sight behind the line of willows, where he remained (must have a perch there). ♀ is still standing up.

11:23 ♀ down low on nest; ♂ high in air soaring far to the west (gain 2/5 mi to the east).

11:55 ♀ very low on nest, so that I had to approach in curtained Dodge

Buteo l. calurus

to be sure she was on. ♂ left from nearby perch at 2/3 mi just as before; it looks as though he were keeping watch.

12:40 ♀ still sitting; ♂ not seen.

1 P.M. As above.

1:30 - ♀ still sitting, very low (The sun shines directly upon her; the leaves of this particular willow - like several others in that vicinity - not being as far along as those on the majority of the trees); ♂ not seen but probably sitting near at hand somewhere.

2:09 ♀ standing up in nest.

2:20 ♀ still standing up; ♂ in f.p. tree.

3 ♀ still standing; ♂ not seen.

5:54 ♀ sitting; ♂ not seen.

6:03 ♀ standing up; ♂ n. seen.

6:20 ♀ still standing

6:21 ♀ sitting over more

6:46 ♀ still sitting; no ♂ in sight.

6:55 (Sun behind rts 15 min ago and dusk very thick) ♀ got off as I was still crying slowly forward. This is too bad because it has always been like this with all other evenings so that I can never tell whether she

has left of her own accord or because of me. She did not seem very disturbed and took up a position in the B.P. tree. The male flew by several times but still she sat there; when it was almost dark she joined him in the L.d. tree. They sat there 15 ft or so apart for several minutes when suddenly the male rose from his perch settled on her back and copulated, after which he resumed his former perch. Presently the ♀ left but I could not tell where. I left also at about 7:15 with the ♂ still at his station and the nest still empty as nearly as I could tell in the dark. I did not visit the nest this time but moved the tent up after dark instead — to within about 1/4 mile

4/24/31 4:10 Twistorny streak in the east; renewed clamor of shifts, commencement of horned lark songs

4:45 Line of trees plainly visible from the new tent site but no details; horned lark songs in full chorus.

Butto Pt. columns 50

4:50 Both birds discovered sitting in a low willow about 500 ft south of the nest. It is just barely light enough to make them out. Meadowlarks are beginning to sing

5:05 One of the birds (:) came and perched close to the other, just below it. 5:10 this bird disappeared and I can't find it any where.

5:16 - As above: one bird still perching; other gone. The night herons are going to bed (they come on promptly at 6:55 the last two nights I watched - quite spectacularly, all at once, and lumbering, like spirits or ghosts).

5:23 Both birds perched close together in small tree just s.w. of f.p tree. One of them was just flying there when I looked and I just spotted him because a flock of 20 mud hens were cranking their necks and walking around the water. The 3rd bird left the perch a moment later - mottled by a blackbird - and flew very close to the ground and very fast away north toward the n. farm (w. of m. bridge) until I lost him behind some willows.

5:30 This bird now perched in a tree to the s. of the nest; the other as before. Just then a ~~prairie falcon~~ duck hawk came flying very swiftly and quite close to the ground up the S bough, passed by both birds, went on, made a big loop, and came back again right by them both and within what looked like 50 feet or so of the nest — flying with great speed still. Neither bird made any move to chase the intruder; perhaps they knew it was hopeless to try.

5:40 ♀ disappeared; ♂ remained about 5 min. later the ♀ appeared flying by the nest and lit in tree n. of f.p. tree; ♂ fly by at this instant and disappeared to the far north again.

5:50 ♀ flew to top of old nest tree and perched there within 3 ft of the old nest for 13 min. A meadowlark was perched on the edge of this old nest when the hawk came up from the other side but it did not leave. ♂ seen once during this time but left. ♀ flew to another tree and was also lost at 6:00

6:07 A bird now perching in about locality where one just now was lost seen. Now it flies very low north to two n of f.p. tree (where the other bird is now perching!), then back very low behind the nest and out of sight. Damn these willows. Now both lost

6:10 ♀ seen to perch in the top of a willow which is greener than the rest by reason of many young shoots and pull off a long twig (1 foot or more and forked) with her beak. She held it in her beak and flew to the nest, put her feet forward and wings back as though to land but changed her mind and went on, made a loop, and flew back from where she came.

flew to lay dead bent her down and feeded the branch from her beak to claw, then "about faced" on the branch using only one foot and helping herself with her wings, then she pulled it upright

She alighted for a moment and then flew back to the nest and alighted on it with the

stick. For a moment she stood up - not seeming to be arranging the twig particularly, then squatted way down and began to sit, only her head showing. The ♂ was perched in the near vicinity during most of this, although I do not see him now 6:30. He is noticeably darker than the ♀, especially on the underside of the wings but also on the breast and legs.

7:38 She has been on the nest ever since 6:30. Observations for this day ended.

4/29/31 Special trip down this P.M. and back the next A.M.

6:55 P.M. (When I arrived). No bird on nest or anywhere else in sight. It is of course possible that my approach to the tent (1/4 mi away) caused the ♀ to leave but not proved.

7:05 Still no bird on nest, although a bird seen perched in a tree to the north. I did not watch any longer.

4/23/31 3:30 A.M. no trace of dawn as yet; it has been very windy most of the night, with showers as well, none of them of any duration but some quite hard

Buteo b. calnus

3:55 The merest trace of lightening down at the horizon. First horned lark heard to sing

4:25 I was now beneath the nest across the bank, shining my flashlight up at it. It was lightening in the east but only just commencing to, and the stars were still out. All at once there was a flapping and the bird jumped off the nest and flapped heavily, slowly, uncertainly — at a steep angle upward out of the trees and towards the lightening horizon rather than into the wind which was blowing from nearly the opposite direction! She disappeared to the N.N.E. out across the flats and I saw her no more. I left at once!

4/27/31 2:30 P.M. Bird (♀?) sitting on nest as usual; other bird not seen. Ditto at 3:04.

Buteos just across the line in Kaufmann land (discovered on same day as Barn Owls, and night nighthawks).

When I was 1/4 mi away from the nest the ♂ was just rising up from the ground with quick nervous

flapping and commencing to circle about high in air — characteristic alarm reaction — while the ♀ was still at the nest, standing up facing the central pole and presumably feeding the young. A few moments later, when I reached the nest tree I could see neither of the adults for a long time, but finally, hearing a far-off scream, discovered them both far up overhead circling and screaming. When I went to climb the willow, which was for the most part dead, I found that a recent wind had split the large limb supporting the nest far down near the trunk so that the whole limb sagged and the nest was considerably tipped; nevertheless the young had managed to cling on and were still in the nest. As I climbed out to it the limb cracked and sank, so I retreated back to the main trunk and was able with a few kicks to send the whole thing crashing to the ground. When I got down one of the young was sitting in the letter of sticks on the soft mud

Buteo l. calurus 56

burnette the nest and the other just tumbling out of the branches beside it, both unhurt. I put one (no 320796) into the water nearby but he seemed not to be alarmed and stood up on the shallow mud bottom facing against the current which at that place was rather swift, and "screaming" every now and then in a high, thin voice in echoe of his parents. After a moment he waded, helping himself with his wings toward the nearest shore — even though I stood directly between him and it. This he did two times, when I fished him out for good.

In the nest was a pellet about 1 1/4" x 5/8, a gopher minus the head and a young killdeer 3/4 grown also minus the head. (Pellet saved)

The parents are now down near the ground, flying restlessly from one tree to another and not screaming any more.

I propped the nest up in an upright position in the tree, so

Buteo l. calurus

that it is now 6 ft above the margin of the stream.

The wet youngster is shivering a little, also "preens" himself every now and then – that is he bites at his soaked and matted down, without any visible result as far as I can see

320 796 (the smaller bird) wet from the stream

320 797 (larger.) oil gland removed as much as could be (bare is included too dry in skin for complete removal.

ages about 10 days and 2 weeks (or maybe 2 weeks and 17 days) respectively. Primaries are about 1¼" – 1½" of which ¼" – ⅜" has burst out.

4/28/31 Refuge Buteo (2nd B. camp).

4:50 A.M. Just light enough to see nest but not light enough to see it distinctly. ♂(?) in h. d. tree; ♀ probably on nest but light too dim to see.

5:05 ♂ as before; ♀ made out now, on nest. Must have been there all night

5:05 - as above.

5:30. Same- Night herons keep coming

Buteo b. calurus

in from their hunting in bunches of 2, 3, and 4, and alighting in adjacent trees or even low down in the same tree with the nest without provoking any hostility from the ♂ who is on guard (scoot away). ♂ shifted to another branch 1 ft away.

5:33. ♂ ♀ appeared for a moment by a Redwing, but only for a moment, the blackbird spending most of its time just setting, and then departed. Other Blackbirds appeared in the tree, stayed a moment or two, and left, without showing any hostility.

5:37. Sun is well up; ♀ on nest still. ♂ left and flew toward nest but disappeared behind the willows before he got to it and did not reappear.

6:12 ♂ still out of sight. ♀ got up, stood for a moment with head low, turned around and sat down facing north. She move her wings and body a little, in settling, like a hen doing the same, and then became still one more.

6:15. Raised one wing - in preening I guess. I can see 4 night herons in the vicinity of the nest tree from this

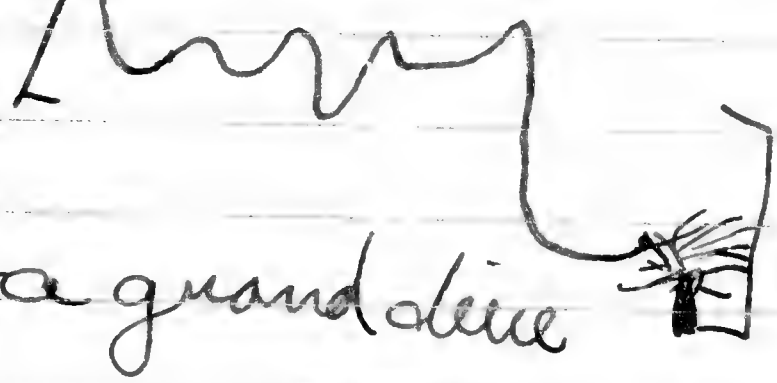
one spot - one of them being in the nest tree itself, perched low down. The tail of the broading red tail sticking up much higher than her head.

6:45 Man on horseback came out to bring in his cows (!), and rode by twice within a few hundred feet of the nest. At the first approach the ♂ left the trees wherein he had disappeared at 5:37 and flew 3/4 of a mi north, close to the ground, and alighted on a post, where he still sits (7:02).

7:50 ♀ on nest as usual; ♂ gone from his post to the north although he was there 5 minutes ago. Can't find him, as usual.

8:05 ♀ discovered to be off the nest and perching (preening feathers) in the nest in the old nest tree, while the ♂ was flying by the nest. He made as though to alight but did not and made a loop around the nest and flew to a nearby tree instead. About this time the ♀ came flying toward the nest (she must have left the above-mentioned perch momentarily) and suddenly turning

from her course dived straight down at a gr.-blue heron which had been "roosting" in the lower branches of a tree adjacent to the nest tree. The latter ducked his head, flopped off the branch and with a deep squawk flew away while the ♀ red tail flew past the nest, made a loop, and perched on the nest of the old nest tree again. Here she stayed while the ♂, flying by, made several sallies at the numerous night herons which were still perched in the trees by the nest. Most of them flew away, whereupon he went back to a tree just to s. of the h. d. tree and perched there. Presently the ♀ flew over and perched a few feet away then a moment later flew to the nest and settled down to incubate. The ♂, a few minutes later left and began to circle quite high in the air, then he began to indulge in the acrobatics described earlier



ending up with a grand dive

down to the level of the nest and past it, finishing with an upward sweep and alighting in the branches of the tree which three minutes earlier he had quitted.

8:37 ♀ standing up in nest preening. I can see her half opening a wing and spreading her tail. 8:40 sitting again.

9:15 ♀ still standing up. ♂ appeared from somewhere and perched in the slender branches about four feet above her; here he stayed for 5 minutes, looking very dark — almost black — even in the sunlight. Then he flew away and began to circle for altitude. When he was two hundred or more feet up he flew very fast — gently flapping, gently soaring until he was over the 3d tower where he began to circle and soar again. A marsh hawk was at this point also soaring, but the red tail was considerably above him; all at once the redtail closed his wings and dived straight down at the marsh hawk, which also dived earthward, whereupon the Redtail swung up and began to circle

one more. The marsh hawk also began to circle and rise, but it managed somehow to get above the redtail and throughout the rest of the time that the redtail was in that quarter the marsh hawk remained above. All at once I saw another red tail - lighter than our ♂ - also circling - a little speck - and gradually approaching our ♂. In a few moments they were close together, very high up, and about the same altitude, showing no hostility but simply circling. Highest up for several minutes, whereupon ♂ came slanting down on half open wings toward home and in trying to follow him I lost sight of the other two. Our bird did some more acrobatics, seeming to turn completely over, ♀ but may be mistaken. Then he sailed and flapped rapidly south into the sun and I finally lost him at a great distance off. When he first left the vicinity of the nest the killdeers nearby

commenced to vociferate.

9:40 ♀ standing up, not doing anything in particular. 9:43 sitting again.

10:13 ♀ standing up — as though eating something, by the motions of her head and posture generally; ♂ perched in old nest tree below nest. ♂ made a loop around nest and then perched in the top branches above the nest; ♀ then left nest & flew to tree just n. of h.d. tree. By the time she got there the ♂ had left his perch above the nest and came to join her. Thirty seconds later the ♀ went back to the nest and settled down once more, the ♂ remaining in the tree n. of h. d. tree — another habitual perch, it seems, and seemingly in the shade also.

10:24 (about) ♂ left his shady perch carrying a long drooping spray of green willow. At first he held it down in the regular way, but a moment later he extended his feet straight back — horizontal so that the branch extended beyond his tail. This he brought to the nest, and lighted with it — both birds now being in the nest

Buteo l. calurus

and then the ♀ left and left him standing there. The ♀ flew up into the air and began to circle while the ♂ stood for a moment and then sat down on the eggs. The ♀ circled higher, sailed form the south, at least a mile radius from the nest, then east, then north and then I'm not sure what happened, it was so high upand so far away - first I saw another hawk, and it and the ♀ circled about, then I saw an immature eagle nearby, sailing steadily east and with a third red tail sailing with equal steadiness in his wake then I lost the eagle but discovered three (the same three I guess) red tails near where I had lost the eagle, circling about, one dived at the other one but there were no further hostilities. Finally I lost all three in the distance. God damn. Not over thirty seconds later I discovered both birds of the nest pair circling and flapping, the ♂ made a dive past the nest but did not light, instead he hit in a nearby tree while

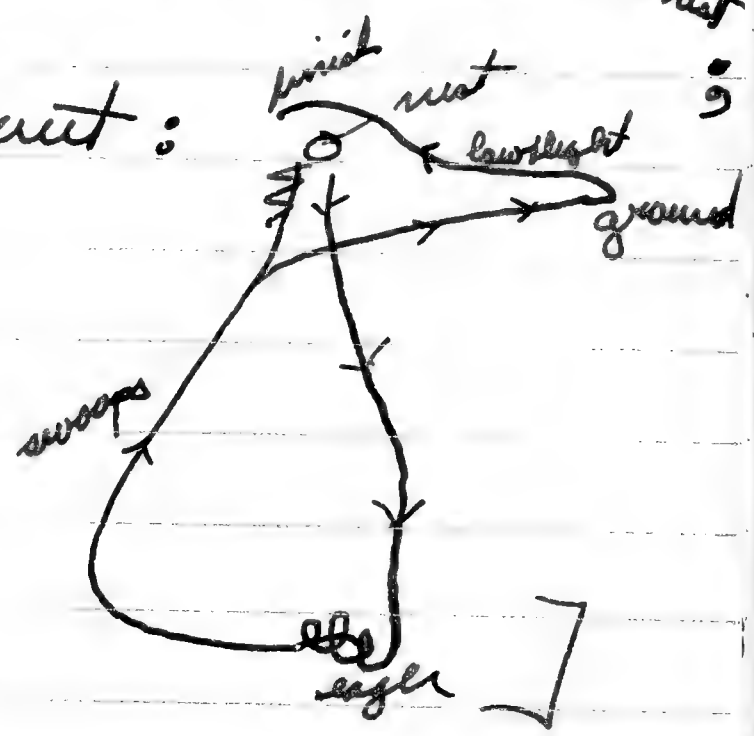
Buteo R. columns

the ♀ went back to the nest. Later on the — oh hell, I can't keep this all straight and break my knee watching these damn birds up in the sky all at once. Anyway as I remember the ♂ replaced the ♀ again — at least there was another swap, and I'm really certain the ♀ which I now see in the air. She is in the air because an immature red tail just now hove in sight, sailing from the S. west. About the time I saw him I saw the ♀ leave her perch near the incubating ♂ and go flapping up into the air towards the intruder. The latter kept circling for altitude though and she never got anywhere near him although when I last saw her she was still sailing upward. Of course I had to lose them both just because I moved one arm after 5 minutes enduring a pain in the neck.

11:30 ♀ back in sight perched in h. d. tree; ♂ incubating.

11:45 ♀ left perch, rose flapping into the air and made off very fast toward the east, sailing on half open wings and flapping alternately, with great speed. When she was at least 1¼ miles from the nest I made out the immature eagle again sailing about. She rose above the eagle, but it rose also, and she did not at anytime swoop at it. After a few moments it must have moved off, however, for she described a big parabola and returned to the nest in a series of tremendous swoops on half closed wings [side view of swoops:

top view of entire circuit:



as the above diagram indicates, she went past the nest northward and

lit on the ground where she stayed several minutes; several times she raised her wings and jumped about and once she shifted her position 30 ft. or so, but the heat waves prevented me from seeing what was going on. Finally she flew back to the nest, low, and passing it, disappeared behind the trees - 15 minutes from the time she had started.

12:07 sitting bird has risen and is upright in the nest; other bird is perched in h-d. tree. Was there been a shift while I was writing the above? [Answer is No 12:23].

12:10 brooding bird seated once more; other as before.

12:18 perching bird preening; occasionally pecked on by some small bird (heat waves prevent identification).

12:23 left perch, circled for altitude, rising nearly 3000 ft I should judge and then glided with great speed s. east until I lost her.

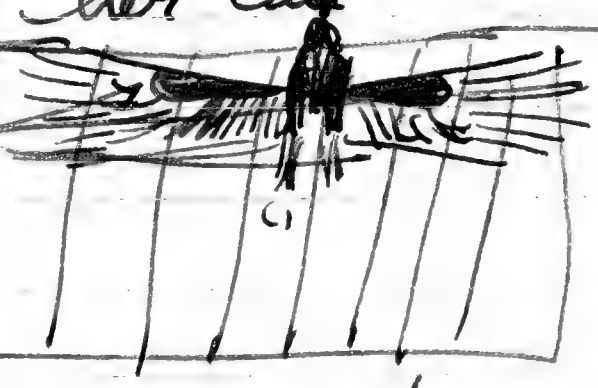
12:40-12:50 More aerial acrobatics and altitude ascents on part of ♀. She perched at 12:50 behind the

Butes l. calvus

nest and then 1 minute later commenced them again.

~~The ♀ is ~~just~~ as dark as the ♂ on head neck and breast & fund, it is the contrast between the light parts and the dark parts of the under surface of the wings in the ♂ which makes him so distinctive, particularly the light patches~~

Also the ♀ has lighter belly and legs, they being buffy in her case



♀ is always normally light rusty beneath.

12:50-1:01 More acrobatics. at 1:01 they changed at the nest and the ♂ now began to circle. I stopped observations at this time until: 6:45

6:45 ♀(?) on nest; ♂ flew from south up to nest and disappeared behind willows at that point

6:50 As above (i.e. ♂ not yet seen again); nightly procession of Nycticorax commenced.

7:15 Nothing has happened; the ♂ (?) female is roosting where I last saw him

disappear – i.e. near the nest. The ♀ (?) is at the nest.

4/29/31 About 9:30 A.M. As I drove by with the car to cross the road 100 yds away the ♂ rose up from the trees near the nest and began to circle uneasily; the ♀ stayed on the nest the whole time, however.

At about 2:30 I brought the lumber for a 15 ft tower over to the road opposite the nest and about 100 ft away and began to erect the tower. The ♀ had left the nest when I was about 100 yds away and now both birds circled about – usually at 100–200 ft up in the air, now one and now the other bird coming within 150–200 yds, but usually the ♀; the ♂ stayed further away. Neither made a sound. I see now that I made a mistake regarding coloration of sexes yesterday: the ♀ is heavy normally light red tail beneath while it is the ♂ that has the dark buzzard-like patches on the ceiling, which make the light patches just distal to them appear in so sharp a contrast.

see revised drawing on page 68

It took me all of 2½ hrs. to get the towers up and during that time the birds came lower and were finally flapping about in some willows 200-300 yds away. At the end of that time I left, having first wired a dummy camera black cloth covered can on top of the tripod. Half an hour later when I looked at the nest from ½ mi. away I saw one of the birds incubating again. Some sort of "prize" is in the nest; it looks fuzzy and is about the size of a rabbit but can't see which bird.

Barn Owl Buteos. No food or pellets found in the nest. Adults are both normally light colored, not like the ♂ Refuge Buteo. Young already show hostility by leaning way back with open beaks, extended wings and attempts to strike at me with their claws.

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6 P.M. on these abouts. Refuge Buteo. Bird incubating O.K. Tower looms up all over the refuge but has caused the red tails no anxiety. Last night I saw morning the yellow tent up to within 1/5 mi of the nest — using no lights and

using the tent only for sleeping this time.

4/30/31 "Barn Owl" Buteo

Adults circling and screaming as usual, high in air. The young are crouched down in the nest (I am still 40 ft away) but they are following the motions of the parents with their heads — so much so that I can tell in what quarter of the sky the screaming parents are located by looking at the heads of the young — which, by the way, are moved from point to point with regulation bird like quickness, not the slowness I have been in the habit of associating with the young. They are silent at present.

The voice of the ♂ adult is higher pitched than that of the ♀.

When I moved up to the nest the young still held their prone cowering (?) position (2 photos showing this) but when I pulled the tabs the leaning sound roused one bird so that he whipped his head around and craned his neck in my direction. I then touched the nest and obtained 2 (or 3?) pictures showing birds in an upright defence posture with wings thrown back and resting on tarso metatarsi; one of them nipped my

#5 Photos

Buteo b. calurus.

fingers several times with his beak — a mere reaction at this early stage. In the nest, at their feet was a single rather small (1½" x ¾") pellet still damp — and beginning to disintegrate already. No wonder we get few whole pellets from jays. in the nest. (same). No food remains except one piece (small) of gopher fur.

5/5/31 L.B.N.R. Refuge pair. Bird on nest in late P.M. as Saturday. When I drove up to the nearest (to her) tent she rose but did not fly away. About half an hour later I looked again and she was still there.

5/6/31 About 6:15 P.M. No bird on nest or anywhere to be seen.

About 2:30 P.M. Same as above. I drove over and even climbed the tower, but not a sign of a bird. The men had been running the tractor since about 10 A.M. some 1300 ft from there — but again the birds were not seen in the A.M. previous to this, although I looked several times, I don't believe their presence has anything to do with it. Once about 10:30 A.M. I heard a single

scream from far up in the air somewhere overhead, but on looking all around could see no bird anywhere. Buteo b. calurus 73

Barn Owl pair. Young birds are feathering out with dark feathers already. They answered their parents with similar, thinner cries. In the nest were the bed and thorax of a young cottontail and a small gopher all but the hind quarters — both alive with ants on the under side, although there were no ants on the young red tails or another part of the nest.

Refuge Buteos again: I watched from 6:40 to 7:15 and never saw a sign of a bird — it was too dark then to see anything more. Must have deserted!

5/7/31 Refuge Buteos — no sign all day.

Barn Owl pair. Parents as usual; one — but only one — of the youngsters answers the parents cries. Why of a nine-men quickly killed in the nest (eaten by ants)

5/8/31 Refuge Buteos. Went over to the nest which was unoccupied as above. Away

~~off to the east~~ I saw a lone red tail ~~circling~~ high in the air. 20 min. previous ~~to this~~ I saw a red tail circling above the nest — probably the same bird. In the nest was the remains of a jack rabbit — much dried, and in same place where I saw the hawk yesterday at times was erected (?) — and three eggs, all lightly splotched with reddish-brown, also one secondary wing feather. During the 15 minutes that I was at the nest I searched in vain for any sign of red tails or any screams — though of course my not seeing them proves nothing —

Ten minutes later when I parked my car 3/4 mi north of the nest I saw the same red tail soaring; it seems indeed to be the ♀, certainly it is marked like her beneath, and with a gap in rt (?) wing where one or two secondaries ought to be, as correlated with the secondary found in the nest (note also that the "Barnard" ♀ red tail has a similar

gap). This bird kept sailing north, very high, until she was 3/4 mile or more north of me (= 1 1/2 mi. north of the nest). As I was watching suddenly within the field I caught momentarily another red tail, much nearer, and then further or another, one to and then I lost the first (Refuge) bird because she was so far away. Lowering my glass I found I could see none of the three!" I get an impression of vast heights and wide horizons bounded by hazy which to our eyes are impossible — a region where they strain futilely through the glass and the arm aches with holding it — and at last one loses the bird altogether and is chiefly conscious of a pain in the neck!!

This P.M. an immature bird seen flying circling by east point (no redon tail.) It too had some missing secondaries from one wing.

5/9/31 Buteo by first Buteo camp: Both birds there at 1:05 P.M. Sailing 100-200 ft

Butte Co. columns

up in the air. On one or twice previous to this — within the last 10 days or so — I have seen one of the birds circling there, although not both before.

5/14/31 "Barn Owl" pair. Youngsters as before; parents vigilant and quick to take alarm, as always. I did all the screaming this time, and was very mistaken about it. In the nest was 1 fresh (wet) pellet

Vertebrae of a snake, picked clean.
Hind foot of a sub-adult jackrabbit
Head of a gopher.

I have never seen any indications of additions to the nest, either green or otherwise. Perhaps its unnatural position broke the "nest building cycle" pro maturity; it smells of rice remains of animals allright.

Refuge pair at 2nd Butte camp. No birds near the nest, but they both rose from near the ground (female?) just across the east boundary of the Refuge as I drove by — exactly where I saw them last time (see top of this page). The 1 particularly,

was recognizable by his dark under markings. (This was just after I had finished tearing down their nests).

Note. The "dummy nest", not alluded to before, I guess (the one that Mr Lellan says he saw the birds constructing before over the other two were there), brought home (photo).

photo of dummy nest (last nest)

The second nest (called 1st nest most of the time in previous notes), was found to have blown completely out of the tree so that only a few scattered branches remained in the tree top.

The 3d nest taken home also. It had not been visited (by the hawks) since the last time I saw them — the same rabbit being still there. The three eggs were cut with razor.

photo

The dummy nest was in the tallest willow on the refuge - 30 ft up (near top), the 2nd nest was near the top of a dense 20 ft willow, while the last nest was in a small leaning poorly developed willow 15 ft tall. There

Buteo L. calurus

is also another (fourth) nesting pile of sticks in a clump of cottonwoods 150 yds to the north which is also brand this year, and which I first noticed about the same time that I saw nest no (2) for the first time. All four of these structures are new this year and I think the hawks built all four of them.

The eggs examined later: One was infertile, one had an embryo about 1" long (not stretched out but natural position) and the other an embryo of about 1¼" long — thus showing what was indicated in the field: that the bird starts setting with the first egg.

Dummy nest no (1) and deserted nest no (2) brought home for later examination.

5/20/31 2nd pair again. As I drove along the west boundary of the refuge I saw the two birds rise from near the fence, just as before, and commence to sail about near one another in leisurely fashion. They kept this up, gradually beating S. east, at times flapping slowly at no great height from the ground,

until far away, over by the s. east boundary


where I saw, and I think both
birds perched on the fence. This shows they are still living in vicinity of the nest locality.

5/21/31 By 2nd Buteo camp: I saw the ♀ flying toward the nest locality at about 100 ft. altitude carrying a small mammal (perhaps a bird but doubt it) in her talons, which she held straight out back, so that the prey was very inconspicuous and I only accidentally detected it. A moment later, near the nest area, she began to circle higher and presently I found that the ♂ was right near her, also circling. A minute after this lo & behold there was a 3d red tail near these two but he was just making off, northward toward the first Buteo area, on set wings slanting downward. When he got over by the 1st Buteo area he commenced to circle. I lost all 3 at this time (the 1st 2 did not assume livin at all) 1st pair studied. As I drove toward that locality one of the birds rose from

Buteo B. calurus 80

a tree somewhere over there (I was still 1/4 mi away) and made off circling and flapping. It flew thus west-ward quite a ways then beat low over the ground and finally was lost to view while quartering over there. I didn't see any other bird. There is a newly established small pile of dead sticks, making a bunch as large as a foot ball, in the same tree where the 1st nest blew down and only about 10 ft from it! Don't know for sure whether the hawks put it there, but??

A pair of Red tails in a large nest close to a road paralleling Salt Slough, 2 mi N. of the L.B.D.R. - a nest seen by me earlier from a distance but never visited: At least two large young, nearly ready to fly in nest; parents screamed when I stopped the car even though I didn't have the machine. The road was a narrow, rather seldom used one, about 200 yds from the nest - I did not examine it further.

5/22/31 2nd Buteo pair. ♂ seen at 10:10 A.M. See account under Circus hudsonius 21 for record of dash.

Buteo l. calurus 81

2 1st pair (studied) about 4 p.m.
While I was near their nest I suddenly caught sight of first one and then both hanging in the wind, to the east, apparently watching me (I had look for them when I first went past the nest but in vain).

"Born Owl" Buteos. Parents as usual - easy to seeing me at 1/2 mi. Nest contained parts of 7 gr. squirrels, and 1 gopher, and 2 cotton tails, ranging from two or three squirrels, brought to day to some which were several days old and quite dried up. The young are practically fully fledged, even the head being well feathered. They showed some fear by hissing back, but made no efforts to strike out with talons for I did not handle them. One bird, when frightened, walked to the edge of the nest and facing the breeze spread his wings and then half balancing, half lifted up, walked out on a small dead branch 1" → 5/8" until four feet from the nest where he remained, now with folded wings, quite at ease, although swaying in the

wind. All at once the branch broke under his weight whereupon he sprang into the air, with vigorously flapping wings and flew gently against, gently water back and moved up by the wind for 100 ft. He lit on the slough bank, stayed there a moment, and then, of his own accord jumped off and flapped low over the water across the slough, and lit again, on the other side. Presently he began to "run", head low, wings partly unfolded, in typical hawk fashion, always putting distance between himself and me. Presently he squatted down, in the same prone position as in the next — a move which may well be one of self protection and here he stayed, even though I hid beneath a dead tree limb 100 ft away, with his eyes fixed on me, until after 15 minutes I got tired and left.

There seemed to be an awareness on the part of the parents that the episode was over, as I walked away; I mean they seemed to distinguish between my going and my coming, even at = distances from

the nest, for they soon quieted down, sailed near the nest instead of circling high, and shortly perched in the nest tree and adjacent trees.

5/23/31 L.B.D.R. Donald McLean tells me that he and E.S. Cheney have known sand hill cranes, which they were photographing, to do just what my red tails did i.e. go back to the nest after ~~intrusion~~ the observer had left and yet desert subsequently. He says they took great precautions but the birds never failed to desert in all the cases they witnessed. In one case the "simply" found the nest "and never tried to photograph it, but even so the bird deserted."

"Barn Owl" pair 7:30 P.M. (dark). When I visited the nest - with flashlight - I found neither young nor old birds there, and no new animal remains. Finis

5/24/31 2nd Buteo pair - Saw the ♂ just east of camp, sailing.

5/30/31 2. Buteo pair - Saw the ♂ just n. of ~~2nd~~ nest area, soaring and flapping in the breeze, as it flew about 50 ft from the ground it was

Buteo l. calurus

chased first by 2 crows and then, as it progressed further by first one and then the other of another pair, so that for a short time before he passed the haunts of 1st one and then the other pair, he was mobbed simultaneously by all four birds. The hawk dodged a little, but mainly ~~wi~~ with a slight veering of his flapping course, the crows flew above him and slightly behind but did not come closer than about a foot.

5/31/31 "1st Buteo" - both birds were circling about nest as usual. When we went over to their nest tree later on one of the birds rose up from a tree near the nest and circled about. In a few moments the other bird appeared near this one and they circled about as usual. One of the birds screamed about twice as though still feeling possession; also one of the birds, in circling near the other, lowered his legs about twice as ~~often~~ observed on other occasions.

Buteo b. calurus

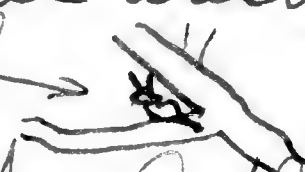
While we were watching this pair we suddenly caught sight of what seemed to be the "barn owl" pair, quite a bit further north, also sailing high in the air. There were no visible hostilities between the two pairs, one pair sailing north-eastward and the other east and south. One of the "barn owl" pair was seen several times to pursue the other bird; (it might have been the young one pursuing its parent) but the pursuing was not very marked nor was there any diving.

Returning to the "1st Buteo pair" - last week, or so - (visit just before the time when young of "Barn Owl" pair left nest) - there was a round-up of cattle just west of the 1st nest of the "1st Buteo" (the one that blew down) and I saw the two red-tails of this pair flapping agitatedly a safe distance above the riders and have noticed a similar agitation when I have been in that place too (looks as if they still had the possessive feeling).

Buteo b. calurus

Last time I visited the carnivore-rabbit traps I noticed in the old tree where the "1st Redtails" built the nest - which blew down a new pile of sticks - about a foot in diameter - the sticks being about the size of those used for a redtail nest foundation - wedged in a crotch of the tree about 15 ft from the site of the first nest. To day I climbed the tree and examined this nest. It seemed unchanged - a mass of sticks - quite solid - having a nearly flat but slightly convex upper surface of smaller twigs. While I was up in the tree a red tail was suddenly seen floating only about 100 ft above and directly overhead. It hung in this position on motionless wings for a few moments - just as though inspecting my activities, and then, without a sound, drifted off. I dont know what to think.

6/3/31 L.B.D.R. "1st B" pair both birds cyclcaned (from nowhere!) and began to circle about as usual. A bicolored redwing followed them up to 100 ft or more and for a time kept diving at first one and

then the other - the hawks tipping or slightly dodging each time. From time to time one or both would extend their legs downward and several times the ♂ hung just above the ♀ in this manner. For just a moment I stopped looking to write and when I looked up both red tails were just leaving a willow in which they had alighted, and mounted hurriedly into the air again; and then I saw that with the burrow the horned owl which I had recently scared up (see Bubo 20); the owl was hunged down beneath a bearing branch →  , out of reach of attack but nevertheless both red tails now swooped down at it and squished by (as they do to a nest robber). Presently the owl flew away - when the redtail were not near. After some more circling one of the hawks darted down and alighted in a willow top, where it still is (15 min. later) thus confirming what I had suspected, that after desertion the hawks not only continued to soar above their territory but perched about among the trees there to rest, just

See Bubo 1 page

Buteo L. calurus

about as they did before desertion — although now they seem less bound to the place and I admit I often can't find them there. A few minutes later I again scared up the owl, and the redtail recounted above approached, which had just risen into the air turned and dived at the owl — although this brought her down within 100 yds of me. The owl was flying low parallel to the ground, mobbed by kingbirds and as the hawk came up to it (more from behind rather than above this time) the owl, it dropped to the ground. The red tail at this slanted skyward again whereupon the owl immediately rose and continued its course across the open fields to the willows it was headed for, unmolested.

2nd Red tail pair 2:40 P.M. Both seen circling to the east of camp, at least I guess it is the pair — I recognize the ♂ and the other bird is larger and colored like his mate. One of the birds when first seen was about 1/4 mi behind the other, and flying after it swiftly, dived at it

Buteo b. calurus.

from above, after which they both circled for altitude until lost sight of them; however I think this must have been in play.

6/4/31 L.B.D.R. s. side by Mud B. Lough. See Reconnaissance 4 for account of crows harassing a red tail.

6/6/31 Pebble Beach property just e. of s.e. cor L.B.D.R., by big ditch. 8:05 A.M. A large (♀?) red tail has been perched on various phone poles, and several times on the banks of the big ditch since about 6 A.M., not doing anything except occasionally shifting its perch; it has just flown away. Part of the time its mate was perched on the fence a little distance away. This goes to show that the prolonged periods of "just sitting" which I have witnessed at the nest are the regular thing at other times of the year, only less more centered around a particular restricted spot. Out here where these red tails are the nearest true, let alone nest area, is a mile distant.

6/7/31 1st B. pair. Both birds hanging about bars to north of 2nd nest, as usual.

6/8/31 One bird of above pair, as usual, here.

Buteo b. calurus 90

5 mi. south of 70 Mile House, Cariboo Highway, British Columbia. Sunny A.M., about 9:30. I heard a continuous (at intervals) complaint in characteristic Buteo tones and as I came over to it caught sight of an immature bird flying after an adult, the immature bird doing the screaming. It was as though the youngster were begging to be fed — as I think he was — for he would sail toward the ♀ (perched in a tall conifer) and she would depart at his approach, to alight further away or else rise, circling. I suspect she was urging him.

8/22/31 Odell Ranch, Gordon Valley, Napa Co, Calif., Canyon where quail were liberated. Two, and I think three birds, one seemingly an immature (if the third bird, which was very dark, was a red tail, as I think) seen sailing about. One bird screamed several times. Looks as though it might be weaning time for the young —

but this is guesswork.

8/28/31 Ahell Ranch on dry hillside by station 70 one bird seen flying over the hill, and also near station 70 two one, and heard to scream several times, although no other bird was to be seen. It was an adult and acted just as do adults when one is in the vicinity of their nests and they are feeling possessive. Dont know why she (or he) should be acting like this now.

5/31 L. B. D. R. 1 Noontime By Second Buteo Camp.

(Presumably second Buteo pair) My attention was attracted by a scream twice-uttered of a red-tail in the direction of Salmon Slough. Two Red tails, ♂ + ♀, were circling about high in air, the male being considerably higher up. There were no demonstrations of any sort and pretty soon the male sailed away southward on set wings in an unhurried manner. This screaming

I have noted before at different places during the last month (see earlier pages), and had supposed that it was an indication of "weaning time", but now since this particular pair is known to have produced no young this interpretation is uncertain. Investigate this point thoroughly as soon as possible!

A few minutes later - one of these hawks flew over near us, circling, and is most certainly the ♂ of the 2nd Buteo pair. He is molting, with several missing primaries showing, but still shows plainly and startingly the dark, blackish area beneath the wings which gives him, and him alone, that buzzard like aspect noted earlier in this study.

*9/21/31. *Alpine Creek Ranch, San Mateo.

Co. Calif. by corn field – see Lophortyx under this date for indifference (?) of hawk to the quail.

10/4/31 Ohell Ranch, Napa Co. Calif. Same hillside as mentioned in previous notes. Two birds an ad ♀ and a large immature bird (looks big enough to be a ♀ also, I think) seen sailing in same place, usually near each other but sometimes separating; no hostilities or other demonstrations between the two; can't make out this relationship. Anyway, curiously enough, one of them still screams at irregular intervals, just as I noted earlier. This screaming took place not only when I was on this hillside, but later, when I was ½ mi away from it, sitting out of sight under a tree, and one of the birds was a mile from the hillside, high in the air. Rather looks as though I were not the cause, at least this time.

11/2/31 Alp. Cr. Ranch. M indeg. distinct. See under Lophortyx p. 39 for brief note on one ad. red tail apparently driving

another from its territory

11/8/31 Alp. Ranch. by Conquest Today, and also on the previous date I have heard red tails scream when seemingly alone and undisturbed by my presence, perhaps my idea in late summer (this year) that many time I heard a red tail screaming it meant young were being mewed, did not hold true in all cases

11/15/31 Ophell Ranch, Napa Co., Calif. Some lindsey (?) in same locality, although it did not scream this time, at least I did not hear it.

Dec. 12/14/31 Algerine Creek Ranch, S. Mat. Co., Calif. Today I not only heard but saw the screaming red tails. There were two of them, ♂ and ♀, circling high in the air to the s.w. of the bunk house. Now and then they would come close together and hang one above the other and nearly touching, just as the red tails did at Los Banos. It was during or just after one of these rapprochements that I heard one of the birds (don't know which one) scream; the other times that I heard the scream I did not notice whether the birds were close together

or not, but think not. It was a cold foggy day following a storm, not at all spring like or amorous-feeling weather. The cry when I heard it during the time the two birds were together was a cree-e-e, followed by a plaintive chee-óp, chee óp, chee óp, chee-óp in a slightly ~~lower~~ softer tone, perhaps; both notes, though, were audible for a long distance (probably half a mile). This chee óp note I heard on the other occasions, too, when the bird called and I did not see it, but I don't recall whether the cree note always preceded it; I think not. I don't quite understand why all these antics at this time of the year; surely active courtship hasn't begun already. Oh, yes about dec 12/1/31, when I was down for about an hour, one of these redtails (certainly) was circling over the chicken yard and deer pasture and calling in this same way, every now and then alighting on the tops of the tall pines and deodars there, and then moving on again, restlessly I did

not see the other bird at that time.

Dec 20, 1931 Alg. Creek Ranch. About noon today I heard the familiar scream again - just the single note, not the cheep-cheep notes - and discovered three red tails sailing about high in the air above the chicken house. Was not long at a loss to explain the super numerary bird, for even as I looked one of the circling hawks dropped ~~plump~~ like a falling stone at another which later dodged and commenced sailing away; the third hawk (the assailants mate I suppose) was only a hundred or so feet away all this time too. While I was getting my x 12 & better observing it all, however, the vanquished hawk circled, and at my return I saw only the victor and his mate sailing still high in the air, back toward the ridge above the chicken house, where I have heard and seen them so much of late. Whether the bird which they had driven away was an adult or an immature I don't know, not having got the glasses soon

enough, and if it had been an immature, whether it was their own offspring or an undomiciled interloper, it would have been impossible to tell. It is probably much beyond the season when the old birds are driving away their offspring however. The two victorious birds were adults, as I could see by their red tails.

Jan 4, 1932 One again, about noon, I heard a red tail scream about twice, and looking up from my work at the quail enclosure (alp G.P.) saw the ♂ & ♀ sailing and circling about 175 ft. up over the corn field. They were about 100 feet apart or perhaps more, and while I watched them the ♂ began to sail steadily north east on slightly folded wings until he disappeared behind the trees which obstructed my view; the ♀ meanwhile continued to sail and circle above the cornfield. Neither bird made a sound while I watched, so that I do not know which one made the cries which had drawn my attention to them.

January 5, 1932 I have been hearing the single screen

Buteo b. calurus

and then the "cheep" note at intervals since about 9 A.M. (it is now 1 P.M.), only the cheep note sound like "sick, sick, sick" today. When I was up by the quarry I got a good look at the birds for several minutes. They are ♂ & ♀, and their immediate headquarters seem to include the land bounded by ① Los Tranos Canyon, ② the north end of the cornfield and from there straight across the road to the top of the ridge, ③ the top of the ridge from the point mentioned above to a point several hundred yards farther south than the lunch house, ④ from the point mentioned above to Los Tranos Canyon again. At the time of which I speak I heard a scream and then a series of sick-sick-sick and looking up saw a single red tail sailing by, rather high above the hillside on set wings; presently he half closed his wings and shot downward like a meteor for about a hundred feet and then checked his descent by opening his wings and curving sharply upward — all just as I have seen the

Buteo L. calurus

Las Barras Birds do so many times. At the end of this up curve, or it may have been during it, the sick-sicked again, as follows:

At about this time I caught sight of the other member of the pair, but because of the distance, could not be sure which was which, and which was doing the calling. I think that only one bird is calling, at least I have never heard more than one at a time, and I suspect that it is the ♂, but this latter is purely inference. The two birds circled about near each other, gaining altitude a little, and then one of them turned and sailed out of sight, while the other stayed where it was and continued circling. A few minutes later I caught sight of them again — having moved down the hillside. They were circling near each other, and one of them swooped at the

other, which swerved a little and avoided the first. The swoop was not very vigorous, however, and seemed not to have the malice behind it which appears to be shown when one or both members of a pair are driving away a stranger, red tail. At any rate they continued to circle about near each other, one (the ♂?) generally following the gyrations of the other (♀?), although not invariably, for sometimes he would turn and sail directly away for a space. While I was watching these two I suddenly caught sight of another pair of red tails, flapping and soaring (but mostly soaring) far away up at the head of Los Trancos Canyon. They stayed there — hardly more than specks, to my eyes, and the first pair of red tails did not go over there to drive them away. Meanwhile, I noticed, the 1st pair did sail, one behind the other, rapidly in that direction, but they ~~turned~~ ~~sailed~~ ~~on~~ the top of the ridge behind the home house (where nos 3 and 4 interest, see page 98) ~~and~~, while still a-long

way from the second pair, and sailed back along the hillside, the O. think leading, until they came to a dead tree on the hillside above Mc Lellan's house; here the leader (O.) perched, and the O', catching up, glided into the top of the tree and perched also. I left them at this time. All the time I have been eating lunch and they circling this (12:15-1:15) I have heard the scream, followed often by the sick-sick note at intervals.

Buster tells me that he sees these birds "all the time" up at Mc Neil's place, which is somewhere up on the ridge mentioned.

About 2 P.M. I saw an intruder being chased away. When first caught sight of the birds the all three were sailing over Los Franos Canyon opposite the Quail enclosure. They were circling about without any noise or aerial demonstration for all the world like a happy contented group. I have been almost deceived before than once, when watching three red tails circling in

Butte-Columbia

this manner, gives thinking that there were no hostile feelings in the breasts of any of them; a person watching them for a moment only would be particularly likely to be deceived. The red tail has not the dashing aggressiveness of the prairie falcon or duck hawk, and it almost seems as though these circlings on the part of the owners of the territory which I have seen at Los Banos, too, many times) were for the purpose of inducing the intruder to move off without making an actually threatening gesture necessary; again, I may be mistaken, and the circlings may be for the sole purpose of outmaneuvering the other fellow, but they do seem too protracted and lacking in direction for that. At any rate, the third bird began to sail down Los Banos canyon away from the territory of our pair, where upon one of the pair (♂?) turned almost immediately and sailed back toward the ridge; the other member of the pair (♀?), however, was more aggressive

Buteo h. calurus

and continued in the wake of the retreating stranger's red tail, in fact she flapped after him, overtook him and swooped upon him from above — he, (the latter) answered but was swooped upon again, almost immediately, and yet again. By this time they were almost lost to my sight in the haze of the valley, 3/4 of a mile away, at the base of the hills. I now lost sight of them, but about 30 seconds later made out the "home" bird returning up the canyon victorious to join her mate.

Jan 6, 1932 Alp. Cr. R. same place; heard the same screaming noises about noon today, but didn't have time to stop and investigate

Jan 7, 1932 Although I worked all day on the Alp. Cr. R., in the same places as on other days, I neither heard nor saw any of the birds. The weather, by the way, was warm and sunny just as during the previous four or five days.

Jan 13, 1932 Alp. Cr. Ranch. Once again, today about 3:30, I heard the scream of the

red tails and discovered three of them circling above the ridge behind McLellans house. One was much lower than the others, hardly above the tree tops, and it must have been one of the owners of the territory for it was not attacked by the other two, but on the contrary sailed along above the trees and alighted somewhere (I think). Regarding the other two — one must have been an interloper, for I saw just the "tail-end" of a swooping attack on the part of one of the birds (the details were not clear) and then a moment later observed that one of these two was sailing off on set wings toward the place at the upper end of Los Trancos Canyon where I saw the 2nd pair the other day; the other party to the dispute continued to sail above the ridge, remaining in possession of the field. I suspect that these fragmentary notes of mine are part of a territory squabble between the two pairs. Perhaps the 2nd

Buteo l. calurus

pair (I mean the upper Los Tranos pair) has recently moved in and a process of re-adjustment is going on. I wonder very much whether ♂ ever attacks ♀, and vice versa, or whether the unconcerned bird of the trio is always of an opposite sex from the contestants and for that reason does not join in; the birds are always too far away for me to tell.

Jan 15, 1932. I saw one of the birds for a moment as it sailed over the pasture "lot, 97" in the direction of the bunk house today. It was a foggy, cold, dismal afternoon. During this recent period of stormy weather (see under Weather record) I have seen just this one bird this one time — in other words there have been no screamings or aerial manoeuvers — however, Burton McLellan said that he saw both birds sitting on fence posts up at the top of the hill. He said, also, that he nearly always started them up from

large posts or trees up there and that usually they would scream and act disturbed while he worked in that locality.

January 18, 1932. Alg-Br-R. Today I saw one of the pair (evidently) perched in the top of a tall exposed valley oak (at least the oak commes pondrg to it; not the live oak) on the knoll ~~to~~ near the cornfield and cattle troughs. Bill Jenkins said that in the morning he saw one of these birds in the chicken yard trying to get the chickens. He said that when he first saw it the red tail flew at a chicken but missed; at this the hawk lit on the ground in the chicken yard and ran at the chicken but it was again successful in dodging and escaped; the hawk then flew away. Bill said he was sure it was a red tail because it was so large — "he had a hell of a spread on him" — when I showed him the perching red tail he identified it with the Arizonians as the same kind of a bird. Bill said that the hawks and other predatory

animals had acquired the habit of taking chickens from this place because the chickens had been allowed to run loose so long without any care. This is undoubtedly true; chickens are dying of disease and from other unaccountable causes right along and they don't even take the trouble to bury them. All last summer, too, both the chickens and the turkeys were loose in the deer pasture and in the canyon below the chicken house. There are perhaps a score of carcasses, many of them partly picked, lying up the canyon. If the chickens were kept properly locked up the predators would not learn to take them.

Jan 22, 1932 Bill Jenkins told me that this morning one of the red tails was circling in the vicinity of the chicken yards and he took a shot at it with a .22 automatic pistol. At the shot the hawk seemed to fall about three feet Bill said, and then recovered itself and flew away. He thinks he may have hit it; I don't know; maybe it was merely "ducking" at the shot, they say they often do if

the bullet comes very close. I saw one of the birds perched motionless on in the leafless top of the oak down in the cornfield near the cattle rough this afternoon, however; whether it was the same bird, or its mate, I dont know.

Jan 23-24, 1932 Havnt heard any screaming the last two days. In itself that doesn't mean much though; some of the possible explanations are: (1) Recent cold weather has checked the mating impulse temporarily (there is still snow on the ridge although it hasnt snowed for about a week), (2) the ~~other~~ intruding third red tail has been mauled for good (3) one of the birds (shot at by Bill) is dead.

February 10, 1932 Warm weather is with us again, for the first time in a week or thereabouts (see weather record), and accordingly, the red tails are getting very active in their sex mental activities — at least that is how I interpret what I saw today. Evidently Bill did not get one of the birds, for two red tails were sailing

Buteo lineatus

leisurely back and forth above the hillside, in the usual circling manner most of the afternoon. There was not much circling ~~but back and forth~~ about high in the air; rather, it seemed as though the birds stayed closer to the earth, and moved about restlessly from one lookout post to another, flying in fairly straight lines usually with set, roaring wings. Oh, if I could take time off to watch them!

The only episode I did witness was the chasing away of a sparrow hawk by the pair, and even that observation was only fragmentary for the trio were over the brow of the hill and down in the Los Pinetos canyon in no time where I could not see them for the trees which surrounded me. I have never seen red tails chasing a sparrow hawk before, by the way; instead, it has always been the sparrow hawk that was the aggressor. When I first saw them one of the red tails was diving from a great height downward

with, setting upon the sparrow hawk, which was also diving — and zig zagging a little to escape:

The sparrow hawk must have shot earthward at a pretty tremendous speed, for he managed to stay a few dozen feet below the red tail at all times; presently the red tail gave up, momentarily, as indicated above. About this time the other red tail (I forget which was first although I distinguished the sexes by their size) came flying toward the fray, flapping rapidly and overhauling the sparrow hawk in a few seconds; this red tail had been sailing about a few hundred feet away all this time. When it was nearly

Buteo borealis.

above the sparrow hawk it too dived upon the latter, and both fell plummet-like into the depths of Los Liamos Canyon. The sparrow hawk must have escaped on down the canyon, for a second later the pursuing redtail appeared alone and soared towards its mate, where upon they sailed away leisurely around the top of their ridge once more.

Feb 12. Saw the same two redtails in the same locality, sailing leisurely about as usual; didn't see them circle for long. A fine mild clear day, savoring of spring.

Feb 22, 1932. Saw one of the birds for about a minute; it was flying rather slowly above the quail enclosure, towards the swimming pool, about 200ft up, and screaming at frequent intervals.

Feb 26, 1932. Road leading from Decoto (6 miles S. of Hayward) west to Dumbarton Bridge, about 1/2 mile from the first of the salt marshes; Alameda Co., Calif. As I went by I saw a dark red tail perched side by side on the top

of one of the tall steel high-tension-line towers. The birds were about 2½ feet apart, on the top most cross-member of the tower, and were facing in the same direction (which happened to be directly towards me). I stopped and watched them for a few moments but of course nothing happened, so, had I might have waited all day — or those hours — without learning anything new; meetings are deliberate as the clay at times. Occasionally one and then the other, would ruffle its head about six inches, and while leaning forward thus would fluff out its feathers and shake them a bit; this, indeed, was their only activity while I watched them. The birds constituted a mated pair, they agree, and I think also that the period of courtship must be at hand — I remember seeing the birds spend a lot of time together, seeming to enjoy the companionship even when it amounts to

doing nothing more exciting than sitting side by side for an hour or two at a time. Powder-house construction is under way, as usual. The weather has been balmy and spring-like for a month or more now (see Weather Notes, Alpine Creek Ranch, p. F); undoubtedly, in the inferior human tribe, spring weather causes their fancies to turn lightly to thoughts of love.

Feb 27, 1932. Alpine Creek Ranch, on usual place; i.e. by the quiet enclosure (which shall hereafter be designated by Q.I). Today was hazy, warm and calm; only too long enough to observe a few changes regarding the interesting century shrubs which seems to have been taking place between the two periods of redfoils here. Ethel took the following notes (to which I have added various words and sentences for clarity), and in every case called me to witness the incidents related below, so that I am able to confirm all the statements made, and correct them where necessary.

The * below refers to the fact that the actions just described constituted an act of copulation — the first seen for these birds (I saw just the concluding part of it, myself).

d tails — Feb 27 — Alpine Creek Ranch

Noticed a red tail about 1:15 circling a few feet above a leafless top of big tree at left of hill back of bunk house — then it began to screech. At first I thought it was alighting on small at tip of tree but as it touched, something [illegible] quiet & moved to keep balance & [illegible] was [illegible] upon which [illegible] #1 was sitting. #1 [illegible] on back of other for fraction of a minute (about ½ sec. or less — think) — then flew circled once or twice & settled on [illegible] of some [illegible]. Another pair of red tails came from behind hill & then first pair [illegible] — the prs. sailed near to each other [illegible] & disappeared. No pair went in direction (no apparent hostility between the two pairs this time, seemed).

1:15 — one been sailing by — ¼ mi. left of hill, joined by 2nd immediately after.

1:22 — one back in view again — same place. 1:15. Sailed out of sight again almost immediately. At same time the other member of the pair sailed low over hill back of bunk house and was shortly lost to view.

just before you to see & hear him squeak. E. & S.G.

1:00 P.M. - One Redtail flew into view & went to same tree and settled. Stayed about 1 min. Then flew off & circled once or twice & settled again. Another redtail flew past just behind the perching tree and disappeared behind the tree. Then after about 2 minutes perching the one which was in the perching tree flew, hopping mountain over the inclosure & craned his neck, appearing to survey us & what was going on below, and then directly back to the tree making a dive with wings folded in & disappeared again & stayed there 'til 1:15 when he left the tree & came toward enclosure. Near the enclosure he made a dive at a Cooper's hawk & then circled up & disappeared. C. hawk stayed a few sec. circling to rise higher and then disappeared also. In making the dive at the C. hawk the R. tail seemed to drop almost straight down about 100 or 150 feet & in a spiral, in the same plane, that is, turning on his own axis — not circling in a spiral (see fig.) & with wings thrown in about 2/3 of the way.

but this

Fig.

(2)

As said before
After the R. tail made the dive at the Cooper's hawk he (the R. tail) went away, leaving C. Hawk in possession of the quail (strangely enough)

2:20 Pm. One R. tail seen to go to same tree to perch. It stayed about 1 min. & then flew toward the quail-enclosure. About half way between tree & " it met another R. tail (to mate) and both went back to same tree & stayed there about another minute. Then both left & coasted over quail-enclosure, turned & went back & set in tree again. After about a minute there, one departed & ~~it~~ disappeared. Either the other remained in the tree or left unobserved. I couldn't see distinctly whether it stayed on or not but I thought it did stay.

2:40 One R. tail appeared & flew to upmost part of same tree. Set there about 5 min; then departed. During its stay a small hawk of some kind (either sparrow hawk or Cooper's hawk) (I couldn't tell what at the distance) flew near and made 3 or 4 swoops at the perching red tail; the latter did not seem overly concerned, however.

(R. tails)

3:15 P.m. Both birds again in tree together. They are still in the stage during which they keep each other close company; and that they have not started incubating. Both birds fly away + were suddenly seen soaring together about half way between Melbourne and here when a 3rd R. tail makes his appearance + comes close to the sailing pair. The sailing Pair goes back to tree + both perch. 3rd ~~flies~~ circles over ~~tree~~ once or twice + departs. ~~Apparently battle over territory~~. Pair put up no resistance but simply occupied their usual perch during the time that the intruder was present. This passive behavior is a bit unusual; however, I have an idea that this third bird (a member of the second pair mentioned on page 114) has been coming about so frequently during the last few weeks — part of the time with his mate — that the first pair has grown a little weary, or, to put it more exactly, is no longer

will be seen on the above notes that

quail-

stimulated by its presence to show active hostility each time.

Summarizing the above notes:

1. Premigratal activities are proceeding apace. At this season they consist of frequent rather aimless strolling of the territory on the part of both birds. No studies were observed to be carried. The birds usually hold aloof each other and appear to enjoy each other's company.

2. A favorite perching tree has been selected (see picture page 114; this is some tree "behind home house" which I have mentioned in notes for preceding 2 or 3 years), and often both birds occupy it simultaneously.

3. A more or less intermittent territory dispute seems still to be going on between the two mated pairs; perhaps it is leading to a gradual adjustment though for today the hostilities were almost nil!

4. The copulation stage has been reached by "pair no. 1".
5. Aerial maneuvers are dismissed (p. 115, note 4.5.)
6. The red tails are in their turn succeeded by small hawks (p. 115)

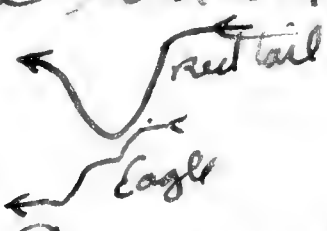
Feb 29, 1932. ~~No red tail~~ Only once or twice did I see any red tails today, and at no time did I observe them sitting in their favorite perching trees. It was slightly colder today, and somewhat hazy rather than sunny, but I am by no means certain that this circumstance had anything to do with the lessening activity of the birds.

Mar 4, 1932. Alp. Gr. Ranch, by "P.I." Weather bright, warm, sunny.

My attention was suddenly attracted by the shrill scream of a red tail, and looking directly above I found one (don't know which one) of the pair that lives on the hillside near here winging its way rapidly, and in a straight line from the direction of the hillside out toward Los Trancos Canyon. Looking further, I discovered an eagle, sailing about above the

except a trifle below)

canyon and directly in line with the oncoming red tail. About this same time the eagle – apparently realizing his predicament – began to alternately flap and sail in small spirals in an upward direction, trying to mount high enough in the sky to avoid the onslaught of the red tail. In spite of his hurried climbing, however, he was unable to rise above the red tail, and a few seconds later the latter swooped down upon him with half closed wings. As the red tail descended upon him the eagle dodged in some manner – I was unable to make out whether he turned his talons upward to meet the enemy or not – and the red tail rose upward again:



Immediately the eagle commenced to fly steadily, rapidly, and in a straight line, directly away from the scene of the encounter, and out of sight. The change in his

demeanor was almost ludicrous; when first seen he had been executing slow lazy circles over one (more or less) fixed point; now he was beating away in all haste and no dignity whatever. The red tail remained soaring autonomous at the scene of the fray, and thus gradually moved off to its hillside once more. The whole episode, from the time I heard the first scream of the red tail (the one, as always in such encounters, made no sound) until the flight of the larger bird had passed, was in one minute — a striking illustration of the speed of aerial manoeuvres. The eagle had a rather small patch of the base of its tail, a rather dark head (seemingly not very golden), and no conspicuous white patches beneath the wings.

Mar 20-21. Saw one of the birds, at more intervals sailing by fairly low down, but heard no cries and never saw more than one bird. My guess is that the other

is incubating

Mar 26, 1932. Alg. Gr. R. Have noticed only one bird at a time, sailing about occasionally, for some days now: the other bird must indeed be sitting on eggs.

Mar 27, 1932. Alg. Gr. R. See under Lophortyx pp 61-62 for accounts of two instances of this red tail family preying on quail, as told me by Buster McLellan. Buster thinks the red tails, as well as the coyote ravens, have got some of the many pigeons (some of those carcasses have been found as noted under Accipiter).

April 27, 1932. Alg. Gr. R. Have seen just one of the pair at a time during the last months, and only occasionally at that. Today I didn't even see it, but heard one of the birds scream several times and give the cheep, cheep note. The sounds came from right over head, but the trees obscured my view so that I could not see the maker of them.

April 28. Alg. Gr. R. This is my first day at watching red tails continuously, in this

loyalty and my God what a lot of them there are, and what continual rattles they do have! I have only been here 1½ hours so far it is now 12 M, but I have seen:

① Two adults chasing a third adult down Los Francas Canyon from its nest, both of the aggressive adults taking turns swooping at the land. Where they all went to I don't know; the retreating bird went down L. F. canyon out of sight, one of the aggressors I lost track of the other went out of sight to the east of L. F. canyon, behind some trees.

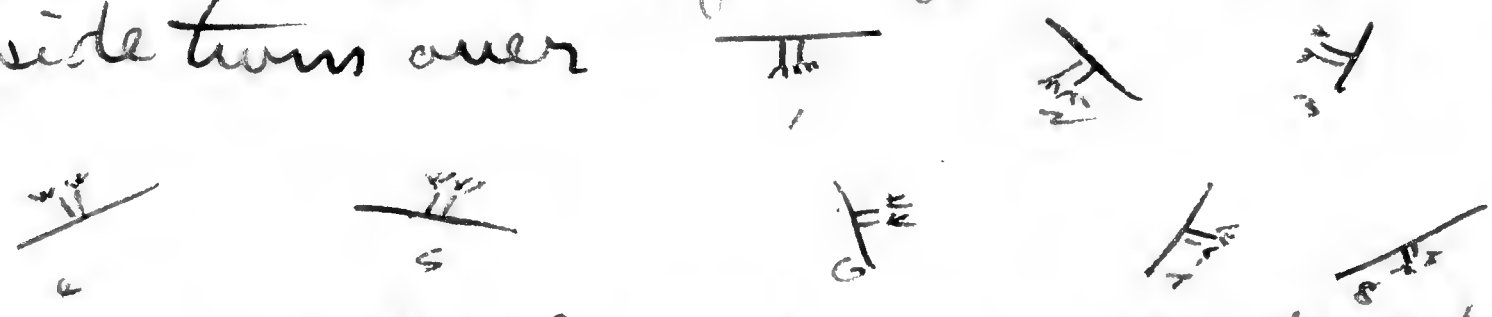
② 15 min later. Seven red tails circling about each other in one place at one time! The place was directly above Los Francas Canyon. I had the devils own time trying to keep track of them, and failed, in fact. Five made out the age of — three were immatures, at least one of them having molting remiges

and looking very tattered, and two were adults. The remaining two disappeared before I could ascertain their age, but I think they were probably adults. Young adults dining at immatures, but did not see any immatures dine at adults and don't believe they did so; whether any of the adults dined at other adults I don't know — also, where they all went to I don't know. I started following one of the 5 which was evidently just learning from the bay because it was getting beyond its territorial limits (it was an adult), and it sailed for about 5 miles north along parallel to the ridge after which I lost it. The others had all gone by that time also.

What I think is that these immatures — whether consciously sticking together or not I don't know — sailed along the ridge and were successively attacked by the various mated adults whose territory they crossed. Where these territories over-

lapped (so to speak) at the immatures. Found them selves harrassed by two pairs of adults simultaneously.

During I saw one of the immature birds, when swooped upon, do a side turn over



In reality the feet are not extended except at positions 3-6 (about), and even then they do not seem to be fully extended.

(3) An adult maneuvering to get above an immature, and chase him away about 10 minutes after no (2) above; possibly they were some of the same birds. The immature was about the same height as the adult at first, and for a while the latter, although quite near to him (a few hundred feet) seemed to pay no attention to the intruder but just kept circling in one general spot, probably gaining altitude I have noted this apparent

indifference of a red tail hawk to an intruder more than a few times in the past; it is declining, but if one watches long enough one sees the true state of affairs, as follows: Presently the immature land more a little way off, without rising, which allowed the adult to gain altitude on him by following him thus -

(the numbers inside of circles indicate relative positions of the two at any one instant). At ③. The adult, now above the immature, at rough, still some distance from him, began to coast on set wings more and more rapidly in his direction. The immature coasted with equal rapidity away, no longer circling. In a few seconds it was a mouse, the intruder (his) fleeing far down the canyon and the adult rising again to greater heights and sailing in a leisurely manner once more. I lost the adult when it went to the east of L-L canyon

Buteo R. columbus

(my view is cut off on that side).

Watched one red tail for about an hour, ~~nearly~~ until I had a headache from staring through the glasses so long, and a tremendous pain in the neck as well. All it did was "just sit", shifting occasionally from one tall Douglas fir top to another. It is hard as the devil to make out a hawk when it is down below the rim of the canyon, silhouetted against the dark greens, the browns, and the myriad shadows of the thick forest; as a matter of fact there is no silhouette, but a nearly complete blending of the bird into the landscape, even when it is flying. At last I grew too hungry to wait any longer, having, indeed, lost the bird when it sailed out of sight behind a hill. (I had watched from 11 A.M. until 3:30 P.M.).

May 2, Same place as above. Watched again, for about 2½ hours. It rained part of the time and was

clouds and windy the whole time. These conditions probably accounted for the fact that I saw the birds ~~in the air~~ only on one occasion, when I scared one of them out of an oak tree and it was joined by its mate — this in contrast to the seven which I saw the other day. The birds were all probably "just sitting" somewhere out of the direct wind, which was blowing hard.

The pair that I mentioned presented a number of unusual features. I heard first a high pitched squealing sound — like the cheep, cheep, sound only minus the ~~chee~~ "op" part, i.e. chee, chee. Starting away the hilltop I saw one of the birds just as it was about to leave the tree in which it had apparently been making the sounds; it had seen me. A moment after it flew ~~away~~ away I heard the usual long-drawn pequist scream of a red tail whose nest has been disturbed. Presently I saw the pair, circling

Buteo B. calurus

at a distance as they do, and one of them occasionally screaming, although I must say that were not so insistent as many pairs that I have seen, when their nest was approached. There was a part of a small nest in the oak from which the bird had flown, and a moderate amount of white spatters on the foliage below it, so I climbed, although the nest seemed so ridiculously small for a cooper's hawk or a crow, even. The tree was about 50 - 60 ft high. When I got to the top I found that the nest was even smaller than it had seemed from below, being a mere double handful of twigs, all covered with columbine, and not large enough for a crow at all. The white spatters had fooled me; they must have got there by reason of the fact that the spot was a favorite perching spot for

one or both of the birds; it was significant that after I began to climb the tree I neither heard nor saw either of the two birds again. Probably their nest was not far away, but I was still too far distant for it to alarm them very much.

Another curious thing about this pair was that the smaller of the two birds was in the immature plumage. Perhaps the female had recently lost her first mate and had recruited one from among the young of the nns. In view of the other day's spectacle it is easy to see how she might have found an nn without much trouble. The more difficult question is, what proportion of nns are ready to breed, and if many of them are why don't we see more breeding birds of this plumage? Why don't two nns get together and start an establishment of their own?

June 12, 1932. The red tails of this section, (and I refer to what seems to be this district (?) pairs, one in upper Los Tuamos

Butte Co. calls.

Canyon and the other behind McLellans house) are peculiar in that they not infrequently utter the cheep cheep cries even during the summer months, as follows:

(1). Today I heard an adult ~~above~~ the Q.S. calling thus ("McLellans house" pair?) several times.

(2) heard it (or another) calling in the same way on June 8, as also at other times during the past two months.

(3) The Las Trampas pair I have heard calling thus once or twice during the last 30 days. One of these two occasions has already been recorded as the time when I climbed the unused nest and got fooled.

I am unable to think what the reason for these cries may be in any instance given. They are given by adults, and are as described in previous pages.

June 13, 1932. alp Co. Ranch on w. side of ridge, 1 mi. e. of Mindego Hill. Cpair of

red tails was first noted here when they screamed once in the distance. Later they circled nearer and one of them alighted unconcernedly in the top of a Douglas fir about 100yds from me. What ever the cause of the screaming may have been it appeared, from this, not to be that I was near to their nest. The bird in the D. fir I observed to be picking at something small which he held under his feet, once in silhouette I saw a piece of it dangling from his bill before he swallowed it. It looked like the tail and hind quarters of a lizard:

after he had swallowed this the bird rose, empty-footed, and sailed away.

July 10, 1932 ~~yesterday~~ 20th Rain and today I heard the same chee op chee op noise as mentioned before, only it was perhaps a little thinner and more squeally. In both cases it came from a red tail in the

Buteo b. calurus

immature plumage which was sailing high over the Q.D. & the adult redtails which own this territory I saw also, flying about and perching on the f.p. tree above McLellans, so it seems that this immature bird must be their off spring. Perhaps he appeals because the old ones, although not yet arrived at the point where they will drive him away, yet have begun to ignore him, and let him do his own hunting.

July 18, 1932. 11 A.M. Alp. Cr. R., by Q.D. Since about 7 A.M. I have been hearing plaintive, thin, screams, immature in tone, coming from vicinity of the f.p. tree (big oak) on the knoll below the corn field. Two young on the wing have been making these sounds, part of the time in concert. It must weaning time. One, at least, of the parents has been sailing about in the vicinity, perching at times, within 3-4 hundred yards of the screaming

Butler v. Columbus.

young, but paying them little direct attention, apparently. For a half an hour or more the young will sit in the trees (they occupy old nest trees), sometimes crying, sometimes silent, then one or two trees will rise and circle about over the canyon, high up, usually crying plaintively, then perch in a tree once more. What I think is happening is this: the old birds are tiring of feeding the young (cycle nearly concluded), and are bringing little (or no?) food to them. The young have probably learned to pursue prey, but are so used to being fed by the parents that, when hungry, they scream for food to be brought to them instead of hunting for it themselves (like Seton's gerfalcon eaglets at time of leaving the nest). They have not yet adjusted themselves to the new state of affairs.

July 21 — Yesterday and today the

same scenes have been re-enacted. The two young perch in the tops of trees down below the cornfield, crying plaintively most of the morning, while an adult (only one seen so far) may be seen in the general vicinity, perched or soaring, with apparent indifference. One she (think a ♀) sailed over a tree in which was one of the young, and as she passed it leaped into the air and soared after her, but she changed her direction while still some distance ahead, while the youngster turned in the opposite direction and finally alighted in another tree, a long way off from her. After the youngsters scream while sailing through the air.

Aug 14, 1932. Davis, Calif. See under Aquila, p. 7 for account of red tail chasing an eagle.

Aug 22, 1932 Y.P. Creek Ranch, Ay Q.D.

Haven't heard the 'hoo-eep, hoo-eep' cries of the young red tails since I came back (Aug 18), nor have I seen them; probably they

are weaned (or starved to death!) Today I did hear some screaming, and saw the home pair driving another, adult, red tail out of the territory. Immediately after this the home adults sailed around rather high in the air, and cried chee up, chee-up, chee-up, for several minutes. I clearly saw the birds red tail driving the whole time, also the r. tail of its mate (and of the intruder, too).

Aug 30, 1932. Alp. br. R. The chee-up calls continue. As before, they are made by the adults as they circle around. The young I haven't seen since July; they must have been driven away. Today, in addition to the chee-ups, there was, apparently, a territorial squabble between the home pair and another ad. pair, above McLellans house, the barn, and the bunk house. One pair chased the other, but the chasing seemed not to be very determined, and no concerted effort was shown by the attackers. All four birds disappeared behind the trees before I could discern the issue.

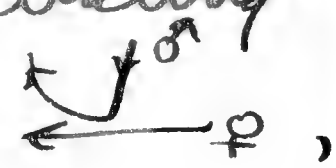
Buteo l. calurus

Sept 21, 1932 - Mockingbird Canyon, 7 mi n.w. of Perris (Riverside Co.) Calif. As told me by Gordon H. Prue, Jr. He and an assistant were keeping track of a certain covey of quail there, from day to day. More than once they saw a cooper hawks make a dive at the covey. The coopers hawks didn't happen to get any but they could fly about as fast as the quail could. One morning they found a red tail trying to catch one of the birds of the covey. The red tail was at a noticeable disadvantage, however, in pursuit. While the cooper hawks, he was unable to accelerate as rapidly as the escaping quail, nor could he follow them rapidly when they turned in their direction. After missing one he hovered clumsily above the brush where the birds were hiding. He got none however, and retreated, warily, before the men could shoot him.

Buteo R. calurus

Feb. 2, 1933. alp. Cr. R. about 10 days ago I heard the chee op chee op of the red tails, just as last year at this time. Jan. 29 I heard them also; and now today I saw two of them perched side by side on the top most branch of a tall dead tree at the mouth of Las Trancas Canyon. Mutual activity has evidently commenced.

Feb. 5, 1933. alp. Cr. R. Courtship continues, also the plaintive squealing and cheeping. Leo Wilson told me that from the Rolphs house he saw the ♂ dive down at the circling ♀ and swoop up again.



as though in courtship activity. The weather has been mild and bright and markedly spring like since about Feb. 1 (see also Confusicis, p. 112).

Feb. 14, 1933. M. V. Z., Berkeley. Donald D. McLean was telling me of the habits of a red tail which he had as a pet, at his home in the Sierras. When he first got it, it was at least three years old, being a full plumaged adult. It had made a dive at a rabbit and had collided

Buteo b. calurus

with a field fence [ type],
dislocating one wing. It was at first very savage, throwing itself upon its back and striking out with its claws. Don kept it in a nearly dark room for about three days, as the falcon trainers do, after which it became astonishingly tame. In a short time it would beg for food in the morning, when the family arose, calling pr-e-e-e, pr-e-e-e (like the Alpine Creek Redtails). This begging call is surprising, coming from an adult bird. Later, they gave the bird its liberty, after its wing had healed and its power of flight regained, but it would not leave the premises. It would not hunt chickens, or attack dogs, but it would invariably attack, and kill, cats. The McLeans lost several of their pet cats this way. The hawk, strangely enough, was able to dispatch them with comparative ease (see Cameron, in Auk, for a different story). He usually grabbed them by the back with one foot, and by the head

with the other. There would be a great deal of spitting and screeching, and a tremendous whirl of cat and bird, but the hawk's claws would keep sinking in deeper until the cat was dead. Afterwards he would eat his victim. Once Don tried to get rid of the bird by taking him four miles away from the home, but he returned home ten minutes before Don did. Some mornings he would perch near Don's mother while she was doing her washing, and call pr-e-e-e- for a half hour or more at a time — like my eagle that would chirrup at me in the laboratory.

Later on this hawk nested near the McLeans home, but even after having gone back to nature in this fashion, it would still allow persons to approach to within thirty feet of it.

I should have mentioned that it would frequently accompany Don when he went hunting, or was out in the fields near his house. Often it would overtake him

before he was aware of its presence, and would alight on his shoulder with a tremendous jar, clamping its claws on his shoulder, to steady itself until it hurt, and buffeting Don's head with its wings as it alighted. It never ventured to alight on his head, however. Sometimes when Don went places, and took a burro along, the hawk would ride on the burro's back.

It met its end close to where it had experienced its first mishap, and by the same means. Driving full speed at a ground squirrel, one day, it crashed into the field fence and split itself open.

Don has raised a spotted owl, buzzard, red tail, golden eagle, horned owl, screech owl, barn owl, and goshawk. These were all tame except the goshawk. Even the barn owl, which was an adult when caught became tame. But the goshawk, although taken when a tiny down-clad youngster, was always fierce,

combative and independent, crowding over its food jealously, and resenting any familiarities; a high strung bird.

Feb 2 Mojigo Creek, Alpine Creek Ranch. Courtship activities are evidently in progress but incubation not yet commenced. Saw five red tails circling about high above a certain densely wooded ravine where one pair is nearly always to be seen. The other three birds were evidently intruders, probably conjugal aspirants. There was the usual screaming and maneuvering for position. Presently only the two paired birds were left.

March 19, 1933. Alp. to R.; by Q.D. saw the ♀ of the local pair here soaring about 100 ft up in the air, carrying in her feet a piece of nest material (some sort of brush, perhaps Baccharis) and headed for Las Francas Canyon. Her mate soared after her, about 50 feet behind. They disappeared over the rim of Las Francas Canyon.

April 15. Received a red tail from Chas. H. Edmondson, trapper for Gordon H.

Buteo R. calurus

True, Jr. Taken at the Indian Springs (State) Quail Refuge, 4 mi. s. of Palmdale, Calif., about a month previously:

Ad. ♀ – contained one ground-squirrel.

Aug 6, 1933 Vicinity of Salt Lake City, Utah. A potential food source for not-too-particular red tail (as well as the usual buzzards) is the supply of ground squirrel and jack rabbit carcasses crushed on the road by automobiles. I flushed a red tail from one of these (~~one~~ crushed so as to be unrecognizable) as I drove up; saw him return again to the carcass after I had passed.

October 15, 1933. Alpine Creek Ranch. I have remarked earlier on the marked tendency of adult red tails to circle high in the air, close together, over the home territory, screaming at intervals. Today I saw two different pairs, in widely separated (~~4 mi~~ 5 mi) sections of the hills doing this. The day was warm, sunny, windless; no other rival red tails observed in the vicinity either time.

October 27, 1933. Under this date Gordon H. True, Jr.,

writing from San Bernardino, Calif., states, "...Even the red-tails do the unheard of and steal a quail now and then. In fact, two have been caught in the act". See antea for other data from him on this subject.

Nov 11, 1933. See under Accipiter cooperii, p. 27, for account by Chas. J. Hayes of red tail catching a quail.

Dec 19, 1933 A stomach of a redtail taken by Edmondson, state trapper working on quail refuges near Palmdale, L.A. Co., Calif. contained one gopher. Date Oct 24, 1933.

A red tail trapped by Chas. J. Hayes, state trapper holding same position in vicinity of San Bernardino contained bones of a cottontail. Date Oct 24, 1933

Dec 29, 1933. See under Lophortyx, p. 636, for account of redtail catching quail.

Jan 18, 1934. I have been given a foot of an im. redtail shot by Hayes while it was carrying off a quail. See also report by Gordon Pruce in C.F. & G. issued Jan 1934 on this fact.

The scarcity of protective cover in the semi desert regions of S.B.,

and Riverside Cos., where these quail are found, may enable the red tails to catch quail even though in other types of country, as on the Peninsula (San Mat. Co.), they are unable to do so.

Other stomachs of red tails sent by Hayes contained:

1. Devil Canyon, S.B. Water Dept. property, S.B. Co., Calif. Dec. 15, 1933. Stomach lining of a seed eating passerine; fur and teeth of a meadow mouse.
2. Box Springs Grade, Citrus Exp. Station of the Univ. of Calif., Riverside Co., Calif. Dec. 10, 1934. Meadow(?) mouse fur.

See Aquila chrysaetos p. 9, for two accounts of eagles killing red tails.

Donald D. McLean told me that once when a sparrow hawk was diving at a red tail in driving it out of its territory, he saw the red tail turn over in the air as the sparrow hawk made its swoop and seize the latter with his talons, carrying it away and presumably eating it.

McLean told me of observing a

redtail when it caught a water or swamp sparrow. The red tail with a few feathers with was sailing leisurely along, apparently not seriously hunting at all, when it came upon the sparrow perched on the ground. Instead of flying to safety, the sparrow squatted and froze, whereupon the red simply nestled down his legs, seized the sparrow and sailed on.

McLean Gelvin states that in the manner in which it usually catch the sparrows and similar, chiefly squirrels that are occasionally found in their nests, or a meal.

Sept 1 - Oct 4, 1934. Summer Ranch. See under Citellus, p. 11, for account of redtails and eagles being forced to move away temporarily following a squirrel poisoning campaign.

Buteo lineatus elegans

8/9/30. About 1 1/2 mi. north Las Alamos, Calif.
One seen perching in tree by road side as the car went by.

Green Heron.

Butorides

7/22/30 Los Banos Game Refuge, Merced Co. Calif. Mud Slough, upper end. One bird seen flying above the tules; squawked once.

5/21/31 L. B. G. R. by Salmon Slough overflow. One flushed from a particular culvert under a road where black crowned night herons are commonly flushed. I suspect that frogs etc are to be found there, as water is constantly trickling through, also it is a good and sheltered place to roost, being constructed of boards.